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'38 Refrigerator Exports Decline 16% From 1937

Preliminary Estimates Show 140,929 Units Sold Last Year

WASHINGTON, D. C.—A 16% drop in exports of electric household refrigerators during 1938 as compared with 1937 is indicated by sales data compiled by the Division of Foreign Trade Statistics, Bureau of Foreign and Domestic Commerce, United States Department of Commerce.

The preliminary figures, subject to revision, show that 140,929 units were sold by American manufacturers to foreign markets last year, whereas in 1937 the total number of export sales was 167,862.

Dollar value of the 1938 exports was \$10,721,548, while in 1937, \$12,754,616 worth of refrigerators were sold abroad, setting the highest mark since 1933.

As in 1937, the Union of South Africa was the richest single export market, American refrigerators sold there in 1938 having a total value of \$1,707,163. Number of units was 20,289.

In unit sales, the United Kingdom, Brazil, and Canada followed South Africa in that order with respective totals of 13,707, 12,042, and 10,773. In dollar value, however, Brazil surpassed the United Kingdom, \$955,026 to \$689,521. Canada again followed with \$673,626.

In 1937, Canada placed next to South Africa in unit sales and dollar value, and Brazil and the United Kingdom were third and fourth respectively in dollar value and fourth and third respectively in unit sales.

Unit sales of commercial refrigerators, up to 1 ton, suffered a decrease of approximately 37%, the respective totals for 1937 and 1938 being 30,709 and 19,390. Total values of commercial sales in 1937 and 1938 were \$2,483,695 and \$1,920,201 respectively.

Best individual market for commercial units, as far as number of units sold is concerned, was France, (Concluded on Page 23, Column 2)

Cincinnati Concern To Handle Carrier Line

CINCINNATI—The Cincinnati Air Conditioning Co. has been organized here to handle distribution of Carrier room coolers, store coolers, and central-plant systems in 18 counties in Ohio, Indiana, and Kentucky. The new organization supplants Milnor Air Conditioning Co., which is being liquidated.

President and treasurer of the new company is William H. Hinsch. Arthur Radtke is vice president, secretary, and general manager; Garry Schultz, chief engineer; R. B. Howard, installation and service manager; and R. J. Illingworth, manager of the commercial refrigeration department.

Ferd Adler, Keith Baldwin, and John Rendler are in the sales department, and Mel Kumler and Michael Henderson are in the service department.

Wyre Manages Lamson Appliance Department

TOLEDO—Doyle Wyre has been appointed manager of the major appliance department of Lamson Bros. department store here. He succeeds D. R. Nighswander, who resigned recently to become a divisional sales manager for Thor washers. Mr. Wyre formerly was with H. B. Wasson Co., Indianapolis.

Dealers, Union At Odds over Closing In Milwaukee

MILWAUKEE—Possibility of a conflict between appliance dealers and the Retail Appliance Salesmen's Union over the matter of closing hours loomed here after dealers, at a recent meeting, voted unanimously that they did not wish this subject regulated under their contracts with the union. The contracts expired March 1.

A number of appliance dealers are reported to have expressed their intention, after the contract's expiration, of determining their own closing hours, citing the action of the dealers' association as justification.

Most of these dealers, it is reported, said they intended to keep their stores open on Saturday evenings, beginning March 4.

No agreement as to this matter has been reached with the union, which so far has rejected the recommendation of dealers that it discontinue regulation of evening closing. In preliminary negotiations, (Concluded on Page 6, Column 5)

Dealers Oppose Entry Of Chattanooga Into Appliance Sales Field

CHATTANOOGA, Tenn.—Will the city of Chattanooga go into the electrical appliance business when it acquires the properties of Tennessee Electric Power Co. and TVA power rates?

This question, of first-rank importance to local retailers, remained unsettled following a meeting last week of members of the Chattanooga Electric Power Board and most of the city's appliance dealers, at which dealers voiced unanimous opposition to the move.

While no definite commitment was made by the city at or after the meeting with dealers, present indications are that, when the city takes over its share of the Tennessee Electric Power Co. system, its initial efforts will be confined to promotional work—with actual selling as a "last resort" measure for use only if dealers fail to produce the extra volume needed to take up the slack of lower rates.

The local utility has its own large appliance showroom, and in the past has been actively promoting the sale of electrical appliances both in Chattanooga and elsewhere.

Although they were unanimous in opposing the entry of the city into appliance selling when it acquires TVA power, dealers at last week's meeting agreed that the Electric (Concluded on Page 24, Column 2)

Contractors' Licensing Proposed In Arizona

PHOENIX, Ariz.—A bill to license refrigeration and air-conditioning contractors and service men, and to regulate and inspect installations, has been introduced in the lower house of the Arizona legislature.

Enforcement of the act would be lodged with the registrar of contractors, who would be empowered to "issue such rules and regulations governing the installation, alteration, repair, and inspection of refrigeration systems, as may be necessary for the protection of life, health, and property."

Granting of licenses would be limited to persons with at least three years' experience in installation or service work, or to firms having such a person in their employ. Graduation from a recognized training school is considered the equivalent of one year's experience.

Licenses would cost \$15 and be (Concluded on Page 7, Column 1)

Emphasis Placed On Package Line In York's Plans

Self-Contained Units Will Be Shipped In 3 Sections

By Henry Knowlton, Jr.

NEW ORLEANS—"The future of air conditioning is in the package equipment field," declared S. E. Lauer, vice president in charge of sales of the York Ice Machinery Corp., speaking before the southern regional convention of the company here last week.

Nearly 100 dealers, distributors, and branch managers gathered at the first of four regional meetings to witness the initial presentation of three new Yorkaire self-contained air conditioners, which are sectional units built in capacities of approximately 7, 10, and 15 tons.

Company executives will hold three other regional meetings; the first in San Francisco, March 11-12; Chicago, March 17-18; and Atlantic City, March 24-25. New products presented at the meetings will include air conditioning, commercial refrigeration, and heating equipment.

The new self-contained air-conditioning units will be assembled at the factory and shipped in three sections; the condensing unit section, the coil section, and the fan section. Flexibility of application is possible because (Concluded on Page 24, Column 1)

Temprite Acquires Oil Separator Business

DETROIT—Temprite Products Corp., manufacturer of instantaneous beverage coolers, has purchased the oil separator business of the Riley Engineering Corp. and has taken over all inventory, production tools, and personnel of the division for the manufacture and sale of the "Oilrite" line of oil separators.

Manufacture of the same line of oil separators that the Riley Engineering Co. has been producing will continue without interruption, declared John Wyllie, Jr., general manager of Temprite Products Corp. Manufacturing operations on the oil separators is already under way in the Temprite plant and Owen Nelson, former chief engineer of the oil separator division of Riley engineering and other personnel are now working for Temprite, Mr. Wyllie stated.

The Riley Engineering Corp. will continue with its distribution of other lines of refrigeration equipment, declared Frank B. Riley, president of the Riley Engineering Corp.

Temprite Products Corp. has been a major user of oil separators and the move which has been taken was under consideration for some time, Mr. Wyllie said.

Niagara League Offers 'Dealers' Choice' on 5 Promotions For Range Sales Drive

BUFFALO—"Dealers' choice" will determine the promotional methods to be used in the two-month drive for electric range sales to be sponsored by the Electrical League of the Niagara Frontier, starting April 10.

A five-feature plan for the campaign has been dealt out by the league's electric cookery committee, and dealer preference will determine whether the drive will be built around a single point, or a combination of one or more of them.

Suggestions from which dealers will be asked to make their choice include:

No. California Sales In January Nearly Double '38 Figure

SAN FRANCISCO—January dealer sales of electric refrigerators in the San Francisco trade area almost doubled comparable 1938 marks and came within a few units of equaling the all-time high for the month set in 1937, according to reports to the dealer sales division of San Francisco Gas & Electric Co.

Sales during the month totaled 1,011 units, compared with 545 in the same month of 1938, and 1,075 in January of 1937.

Ironer sales also showed an increase of more than double their comparative 1938 totals, 174 units being sold during the month compared with 86 in the same month of last year and 152 in January, 1937. The new "home lessons" plan now in effect is expected to further stimulate ironer sales.

Washer sales during the month amounted to 658 units, as compared with 593 in the same month last year and 589 in the 1937 month. Radio sales were the best in the last four years, totaling 4,368 units during the month. This compares with 3,758 in 1938, and 3,870 in 1937.

Approximately 80% of radio sales were table models, according to dealers' reports, only 878 console or chair model sales being shown.

Vacuum cleaner sales were 1,650 units during January, against 1,043 in the month last year and 1,448 in 1937.

Only one electric range was sold during the month, as compared with six in the month last year.

Water heaters and ranges led the gas appliance sales list, with the former totaling 928 units, the latter 986, against comparative marks of 845 and 802 units, respectively, in January of the preceding year.

Zients Named Manager Of A.M.C. Appliances

NEW YORK CITY—Bernard B. Zients has been appointed manager of the major appliance department of the Associated Merchandising Corp., it was announced last week by Philip J. Reilly, director of the organization.

He succeeds David L. Edelmuth, who resigned effective March 1 to become vice president and general sales manager of the Cleveland Co-operative Stove Co.

Mr. Zients, who will assume his new duties March 13, for the past two years has been assistant buyer of major appliances for Abraham & Straus department store.

New Orleans Distributor Named For S-W Line

NEW ORLEANS—Household Appliance Corp. here has been appointed distributor of the complete line of Stewart-Warner appliances and radios.

Philco To Push Conservador As Major Feature

Meat Storage Section In Five Top Units Of 1939 Line

INDIANAPOLIS—Eight models bearing the "Conservador" name, six of them equipped with the shelf-lined inner door feature, comprise the line of electric refrigerators with which Philco Radio & Television Corp. marks its entry into the field of household refrigeration.

In general appearance and features, the new line resembles closely the models formerly manufactured by Fairbanks-Morse, home appliance division of which was recently purchased by Philco Refrigerator Co., a newly organized subsidiary of Philadelphia Storage Battery Co.

Leading feature of the line is the Conservador, the shelf-lined inner door which is claimed to provide 26% more quickly usable space for food storage, as well as to increase operating economy. Most-needed foods, such as butter, eggs, milk, cheese, and fruits may be stored in this section, where they are available without opening the entire food compartment.

Double-action door release controls the outer cabinet door and the Conservador. Using the upper half of the handle opens the outer door only, while touch of the lower half opens both cabinet door and Conservador. If the outer door already has been opened, a touch on a button (Concluded on Page 11, Column 1)

Washer Sales Increase 51% Over Jan., 1938

CHICAGO—Factory shipments of household washers in January totaled 109,909, an increase of 51.37% over the January, 1938, figure of 72,611, and 62.81% greater than the 67,502 washers shipped in December, 1938.

Ironers shipped in January totaled 8,208, compared to 8,967 in January, 1938, and 9,210 in December, 1938, according to figures reported by J. R. Bohnen, executive secretary-treasurer of the American Washer & Ironer Manufacturers' Association.

"These sharp January increases, furthermore, are subject to a small revision upward to compensate for non-receipt of shipment totals from five non-association members," Mr. Bohnen said.

'Pipeline' Refrigeration Proposal For Brooklyn Up For City Approval

NEW YORK CITY—Public hearing on the petition of the Williamsburg Refrigerating Co. to secure the approval of the board of estimates on a proposal of the company to put in and operate an underground "pipe line" refrigeration system to serve both sides of a block on North Sixth St. in Brooklyn between Wythe and Berry Aves. will be held at 10:30 a.m. Thursday, March 9, in the City Hall.

The company has been operating one section of 12-inch pipe in this area since May 24, 1937. Sole purpose of the project, according to the petition, is to "furnish refrigeration to consumers within a limited district. . . ." It does not state the nature of the businesses located in the area, but apparently they are either markets or perishable storage warehouses.

Rates to be charged, as outlined in the petition, are as follows:

"The company shall not charge (Concluded on Page 7, Column 1)

Specialty Selling Methods

Marion, Ind. Dealers and Utility Make Circus Out of Selling & Reap Profits

MARION, Ind.—Selling electrical appliances may not be so much fun for some dealers, but last year appliance retailers in this small mid-western city really made a circus out of it—literally as well as figuratively.

Capitalizing on the circus' universal appeal, local appliance dealers got together among themselves and with the utility (Indiana General Service Co.) and decided to start their spring activities off with a bang by cooperatively sponsoring an honest-to-gosh circus for the benefit of the townspeople.

Cost of this promotion was estimated at \$500, and each of the 15 cooperating dealerships chipped in \$35 as its share of the expense.

Electrical appliance advertising was promptly increased, and as much of it as possible was tied in with the circus idea. Newspapers in Marion and adjacent towns chimed in with much favorable publicity. For a week or so prior to the opening of festivities, a clown band toured the Marion trade area in a truck, spreading the good word.

IN CENTER OF TOWN

The circus itself was held in a 120 x 40-foot tent which had been erected on the utility company's parking lot, right in the center of town. Booths of the sponsoring dealers were arrayed along the tent walls, flanking the sawdust arena. Each booth had a frontage of 16 feet and was 8 feet in depth.

The interior of the "big top" was garishly decorated with pennants and streamers, generously interspersed with slogans on the uses of electricity. A loudspeaker system was installed to broadcast both the entertainment, which was furnished by talent locally known and liked, and the commercial announcements.

Touching off festivities on the opening day came the traditional grand parade, which was held late in the afternoon so that school children, too, might see it. Leading the procession were the town's motorcycle policemen, followed by the mayor,

chief of police, and other local dignitaries. The 75-piece Marion high school band was next in line.

Then came the floats of the various dealers, many of which were elaborate and striking. Following the floats was the Boy Scout mounted patrol, while the clown band brought up the rear.

The circus played to a capacity crowd at every performance during its three-day run. Boy Scouts were given concessions at stands outside the tent to sell popcorn, peanuts, pink lemonade, balloons, and all the other trappings that go to make a circus complete.

Dealers not only made a number of actual sales during this promotion, but they also managed to secure a great many prospect names from among the 6,000-odd circusgoers.

Hotpointers Get Downbeat And Swing Into Drive

CHICAGO—"Swinging" into their first 1939 drive on electric ranges and water heaters, Hotpoint dealers and salesmen hope to get "in the groove" behind their "ride-man" and turn the "tin ears" and "ickies" in their territories into "alligators" who really "savvy jive" on these appliances.

In case you're not a "swing" fan, the plan book for Hotpoint's "Spring Swing" campaign on electric ranges and water heaters has just gone into the mail. Couched in swing-music terms, the plan is adaptable to utility or dealer use.

For campaign purposes, the sales manager becomes the "ride-man," and salesmen are the "cats" whose task is to clear their territories of "tin ears" and "ickies" (non-users). To accomplish this, the campaign urges "jam sessions" (range ownership and study) for salesmen, "voodoo boilers" (advertising), and use of the testimonials of "alligators" and "jitterbugs" (satisfied users).

Ironer Purchasers Pay \$5 For Instruction In Calif. Program

SAN FRANCISCO—Purchasers of electric ironers all over northern California will be given home lessons in the use of the ironer for \$5 in addition to the cost of the appliance, in a program recently inaugurated by the Electric Appliance Society of Northern California.

The campaign is an extension of the San Jose test drive conducted during the last three months of last year. It began Feb. 15, and a check-up within 60 or 90 days will determine the future course of the drive, and improve its operation.

Under the plan, the dealer pays a trained ironer teacher the extra \$5 for the lessons, certified by the customer, and turns in to the distributor the signed card for a refund on the cost of the lessons.

In this way, the only way a dealer may obtain the refund on the advanced wholesale price of the ironer is to give the customer the lessons prescribed.

Purpose of the lessons is to relieve the retail salesman of the expense and time lost in giving customers lessons himself, and to make sure that every ironer purchaser understands how to use the appliance, and so becomes a booster for it.

Merriam Salesmen Seek 'High-Powered' Rating For This Year

SCHENECTADY, N. Y.—Salesmen in the territory of A. Wayne Merriam, Inc. have the opportunity to become really "high-powered" by qualifying as "seven-power" producers in a new organization sponsored by the General Electric distributor.

According to the Merriam rules, a "seven-power" salesman is one who, in 1939, sells one G-E appliance in each of the following seven groups: household refrigeration, commercial refrigeration, range, dishwasher, disposal unit, washer, and ironer.

Every salesman in the territory is eligible, and men employed by a dealer who doesn't sell commercial equipment can get in the organization by selling two each of the other six appliances.

No special reports are required. If a dealer is his own salesman, he is eligible for the organization. Immediately upon qualification, each "seven-power" salesman will receive a pocket set, consisting of a billfold, key case, and leather cigarette case, with his name engraved on them in gold.

To give distributor salesmen a real stake in the promotion, the rules provide that they qualify for membership in the organization as soon as seven salesmen from their territory make the select society.

A Veteran Appliance Retailer Writes Some 'Commandments' For His Fellow Dealers

Editor's Note: Last year one of the News' field correspondents obtained a very interesting story about a method of "Prospect Control" used by one D. L. Calmes, manager of the appliance department of Rosenfield's, Baton Rouge, La. When Mr. Calmes, a long-time subscriber to the NEWS, saw the story about his idea he wrote inquiring if the story might not be worth at least a "Coca Cola" treat to him.

The editors replied that if Mr. Calmes would come through with another stimulating set of ideas or some sort of a story, they might "set up" a real treat for Mr. Calmes should he come to Detroit, or the editors go to Baton Rouge. Just recently an answer was received, and is published below. Perhaps other readers will want to add to Mr. Calmes's list of "DO NOTS" for the appliance dealer.

Mr. Calmes' Qualifications as a 'Sage'

Rosenfield's
Corner Main & Third Sts.
Baton Rouge, La.

Editor:

I did happen however to think of something that may interest a flock of people who think they can make a million out of the appliance business. I am outlining "what not to do" in the appliance business to be successful.

In a more serious vein, each and everything listed below has happened to me at some time or other during

the 16 years I've been in the appliance business. I believe I have finally reached a point where most of them have been corrected.

Though only 36 years of age, I am usually classed as an old man in the business as I started with Kelvinator when they were just learning the art of keeping the ice-man away.

I hope some of these days to drop in on you in Detroit because the price has gone up from a Coca Cola to a 7-course dinner.

D. L. CALMES

What Not To Do In the Appliance Business To Be Successful

According to D. L. Calmes, Manager, Appliance Dept.,
Rosenfield's, Baton Rouge, La.

- DO NOT try to operate underfinanced.
- DO NOT trade long just to get the deal.
- DO NOT let anyone sell you the idea of selling on short discount to get "tremendous" volume.
- DO NOT attempt to raise your price enough to put you above competition.
- DO NOT overstock at any time.
- DO NOT keep your permanent records in your inside coat pocket.
- DO NOT expect your business to come to you. It must be gotten on the outside.
- DO NOT knock your competitors as it boomerangs nine times out of 10.
- DO NOT try to pull something "fast" on your competitors as they are just as smart or smarter than you.
- DO NOT in your sales talk deviate from facts expressed in good old common horse sense.
- DO NOT fail to anticipate and prepare for the slow seasons.
- DO NOT buy all types of appliances from the same source.
- DO NOT finance through a finance company on full recourse.
- DO NOT listen to any high pressure schemes promoted by manufacturer, distributor, or salesmen. Do not even think of them yourself.
- DO NOT fail to rearrange store and window displays frequently.
- DO NOT let your salesmen dictate your policies.
- DO NOT let your salesmen go to the picture show in the daytime except on Sunday.
- DO NOT advance them more than one week's living expenses.
- DO NOT let them chisel you or their fellow salesmen.
- DO NOT let them deviate from any stipulation outlined here.
- DO NOT permit your salesmen to run from one end of the town to the other on "hot" deals.
- DO NOT permit your salesmen to call on prospects except during the hours of 8 a.m. and 12 midnight other than by special appointment.
- DO NOT permit any salesman to call on prospect in shirt sleeves.
- DO NOT permit "bull sessions" among your employees.
- DO NOT permit one or two of your salesmen to squawk and disrupt your entire organization.
- DO NOT let your truck drivers take your truck out at night to go "just" 13 blocks.
- DO NOT let your secretary get familiar with you.
- DO NOT go into it at all unless you expect to work like hell and have a lot of headaches. It's worth it, though.
- DO NOT think this is the entire list, either.



NO HUM-M-M-M!
NO CHATTER!
NO SQUEE-E-K!

... We've designed the chatter out of SUPERIOR check valves ... you can definitely bank on that!

... Opens and closes tightly below one pound pressure ... Minimum of pressure drop ... All internal parts removable for soldering lines to valves, or for future inspection of parts, without removing valve from line.

TRULY—A SUPERIOR CHECK VALVE
Sold by leading jobbers everywhere ... Write for Bulletin R5

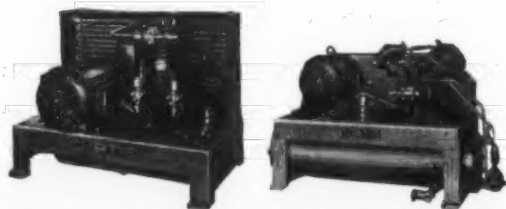
SUPERIOR VALVE & FITTINGS COMPANY
Export Department: 100 Varick St., New York, N. Y. • 500 THIRTY-SEVENTH ST., PITTSBURGH, PA.

Why Curtis is the Extra Profit Line

THE Curtis Refrigerated Store and Office Cooler materially increases your interest in the Curtis line of refrigeration and air conditioning equipment since it is another reason why you'll make more money handling Curtis products. It opens up a new market for the Curtis dealer—makes possible more sales and profits.

Here is a complete factory designed, packaged air conditioning unit—Mechanically cools, dehumidifies, circulates and filters the air—Adaptable for heating, too—Easily installed—Two sizes, 3 and 5 tons.

If your present line does not include packaged units as well as a complete range of remote equipment, get in touch with Curtis at once. Wire or write today.



45 Air Cooled Units—42 Water Cooled Units—1/6 to 30 h.p.



CURTIS REFRIGERATING MACHINE CO.
Division of Curtis Manufacturing Co.
1912 Kienlen Ave. St. Louis, Mo.

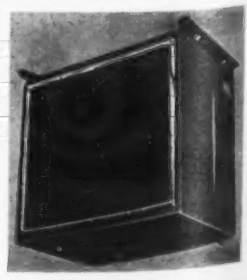
CURTIS REFRIGERATION
AIR CONDITIONING
AND COMMERCIAL

"Builders of Condensing Units Since 1922"

KRAMER

COMFORT COOLER
ATTRACTIVE
QUIET
EFFICIENT

Built in
Four
Sizes



KRAMER TRENTON AUTO RADIATOR WORKS TRENTON, N. J.

You Can Make Money At Kelvinator's BIG BIRTHDAY PARTY!



CUT YOURSELF IN

on this biggest Refrigerator selling event in 25 years—Kelvinator's Silver Jubilee Celebration!

EXPERIENCED MERCHANDISERS—department store executives—dealers who know what it takes to get store traffic—appreciate the sales value of special events. Experienced merchandisers are saying, "This Jubilee of yours means business for us."

Every Kelvinator dealer and distributor is getting ready to cash in on the big celebration...with its six-day Birthday Party...brand-new promotional material...live-wire local cooperative advertising and free gifts!

This is going to be the "hottest" sales promotion of the year. Behind it is the story of the first successful refrigerator and the latest Kelvinator models...the story of improvement after improvement that dates back to the very first electric refrigerator.

Behind it is the new 1939 Kelvinator line,



Watch the crowds during Kelvinator's Silver Jubilee Week, April 3rd to April 8th. Many Kelvinator dealers and distributors plan to give away free gifts and special frozen desserts to celebrate the occasion.

with more new features to talk about...*more new features to sell*...with new low anniversary prices that will make Kelvinator the "value" line of the year.

Behind it is the practical, effective sales training program of the Kelvinator National Salesmen's Institute, turning lookers-around

into buyers, demonstrations into sales, store traffic into profits.

All this means that 1939 is going to be Kelvinator's big year...*your* big year, too—if you include Kelvinator in your plans. Don't just wish you had—get your share of the profits now. IT'S NOT TOO LATE!

Perfected Product of a Quarter-Century!

TODAY, Kelvinator adds a fitting climax to its first 25 years of pioneering...by introducing the new Silver Jubilee models...modern...beautiful...sensational...as revolutionary as the first Kelvinator that introduced electric refrigeration.

These new "selling features" give you the opportunity to make 1939 a volume year for you and your salesmen.

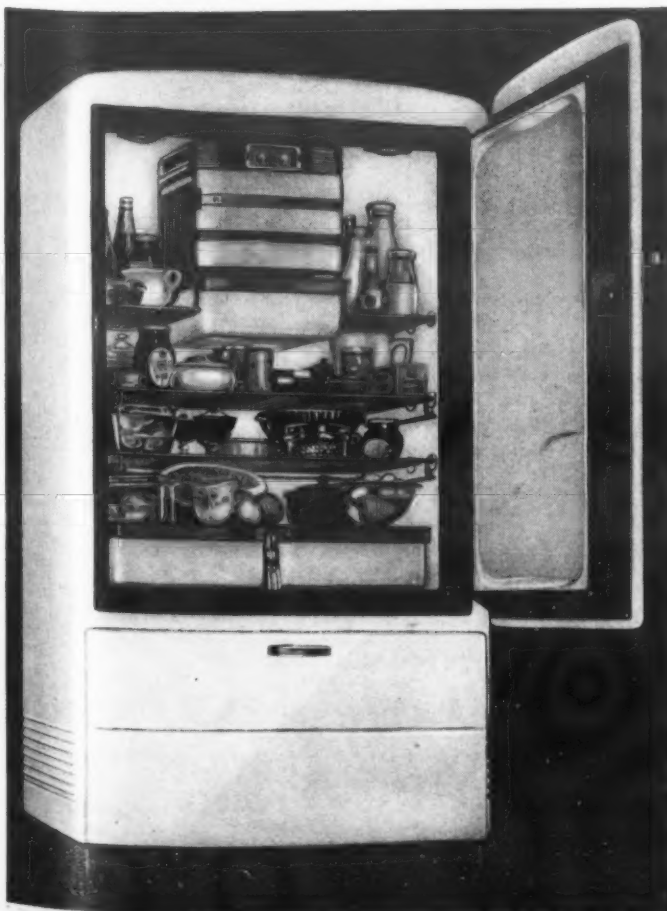
NEW! Conditioned Cold—the latest refrigeration discovery...flavor protection in special compartments for meats, vegetables, and frozen desserts.

NEW! The Polarsphere—considered the most efficient cold-producing unit made. Completely sealed in a welded steel ball...produces cold power enough for five refrigerators.

NEW! "Family Planned" interior...shelving arranged to end groping and fumbling. New wider front, less depth, more storage space.

NEW! Vegetable Bin. Dry storage for nearly two bushels of onions, potatoes, squash, etc. Tilts open easily. Attractive chromium type handle.

Kelvinator, Division of Nash-Kelvinator Corp., Detroit, Mich.



Silver Jubilee **KELVINATOR**
BE IN THE SPOTLIGHT WITH KELVINATOR IN 1939

Distributor-Dealer Doings

'Bungalows' To House Pittsburgh Exhibits

PITTSBURGH—Electric refrigerators and other major appliances will figure prominently in "bungalow" exhibits at Pittsburgh's first Home and Furnishing Show, scheduled for Motor Square Garden during the week of April 15 to 23, inclusive.

In an innovation in home shows, 20 bungalows will be erected on the floor of the exhibit arena to house the various exhibits, eliminating the necessity for building booths and backgrounds. Each house will be 28 x 24 feet, and may be arranged with two, three, or four rooms as desired.

This "homey" setting will enable exhibitors to display their goods in life like settings, although booth space also will be made available to the smaller exhibitors. In addition to appliances, furniture, floor coverings, draperies, house furnishings and decorations, and building materials and equipment will be displayed.

Sponsoring the show is the Furniture Club of Pittsburgh, in cooperation with real estate, building, electrical and related organizations.

'Retailers Only' At Dayton Home Show

DAYTON, Ohio—Dayton's annual Better Homes Exposition, co-sponsored this year by the city's Gas & Electric League and Construction League, will be staged March 15 through 18 in Memorial Hall.

Hours of the show will be 2 p.m. to 11 p.m. and admission will be 15 cents. Door prizes will be awarded.

Participation in the show is being confined strictly to retailers, with no jobbers, wholesalers, or distributors being permitted to exhibit.

Globe Electric Takes on Philco Refrigerator

SEATTLE, Wash.—Eustace Vynne, northwest district manager for Philco Radio & Television Corp., has announced appointment of Globe Electric Co. as distributor in the Seattle territory for the new Philco "Conservador" refrigerators.

Newark Dealer Enlarges His 'Melody Hall'

NEWARK, N. J.—Lightning Electric Service, local appliance dealer, has completed enlargement of its Melody Hall, used for playing phonograph records for prospective buyers.

Distributorship Holds 'Appreciation Days' For Its Dealers

PROVIDENCE, R. I.—Celebrating the opening of its new showroom, Ballou, Johnson & Nichols Co., Leonard distributor, recently held a series of five "appreciation days" for dealers, in cooperation with the manufacturers it represents in this area.

New Leonard refrigerator and ABC washer and ironer models were introduced during the period, and special mid-winter prices were featured on selected housewares and floor coverings.

Territorial representatives were on hand to greet dealers during the "appreciation days," and daily attendance prizes were given in addition to a grand prize at the close of the celebration. H. R. Tracy is head of the company's electrical appliance department.

Blood Seeks 'Drama' In Appliance Advertising

SAN FRANCISCO—Improvement in advertising technique that will pick out and emphasize one or two outstanding features of an electrical appliance was predicted by Howard E. Blood, president of Norge, in a talk at the recent spring market meeting of the Western Merchandise Mart here.

Appliance advertising has been characterized by a drab sameness, declared Mr. Blood, with no distinguishing of one competing product from another. The advertising of 1939 will put new life into the appliance business, he said.

Mr. Blood urged widespread use of placards and labels on appliances used for displays as most effective silent salesmen.

With Mr. Blood, Don E. Gilman, vice president of National Broadcasting Co. in Hollywood, Calif., was guest speaker at the Western Radio & Appliance Trade dinner.

'Dutton & Sons' Becomes 'Dutton-Lainson Co.'

HASTINGS, Neb.—Name of W. M. Dutton & Sons Co., manufacturer and distributor of electric refrigerators and other home appliances, has been changed to Dutton-Lainson Co. by action of the firm's stockholders.

Officials and personnel of the organization will remain unchanged. H. A. Lainson has been general manager of the business for 19 years and president for the last nine years.

'Optimism Now Highest In 5 Years,' Thompson Finds

PORTLAND, Ore.—Asserting that business men have not shown as much optimism in five years as at the present time, particularly in the electrical industry, W. H. Thompson, director of utility sales of the Westinghouse Electric & Mfg. Co., injected a cheerful note at a meeting of dealers and distributors here last week.

"I have just completed a trip through the southwest and Pacific Coast states, and the northwest looks the most favorable," Mr. Thompson declared. "I might say further that northwest homes are electrified to a much higher degree than most parts of the country, which in itself is a distinct tribute to the good work and policies of your utilities and of dealers and distributors."

Sheahan & Deagan Names Department Heads

TOPEKA, Kan. — Sheahan & Deagan, appliance distributor and heating and air-conditioning contractor, has announced appointment of four new department heads, two to have charge of the firm's wholesale operations and two to handle retail appliance sales in Topeka.

R. C. Coon, who for the past 16 years has sold electric refrigerators and washing machines in Manhattan and Seneca (Kan.), now heads wholesale operations in the western division of Sheahan & Deagan's territory. F. W. Pfuetze, for the last 10 years associated with General Electric Co. in Manhattan and Topeka, holds the same position in the eastern territory.

E. W. Knutzen and M. T. Casey have charge of the company's retail business. Mr. Knutzen spent 10 years with Central Arizona Light & Power Co., Phoenix, Ariz., while Mr. Casey has been representative for Modern Appliance Co.

The Sheahan & Deagan firm handles Electrolux refrigerators, Chambers ranges, Hydro gas plants, Ward floor furnaces, and Rex automatic water heaters.

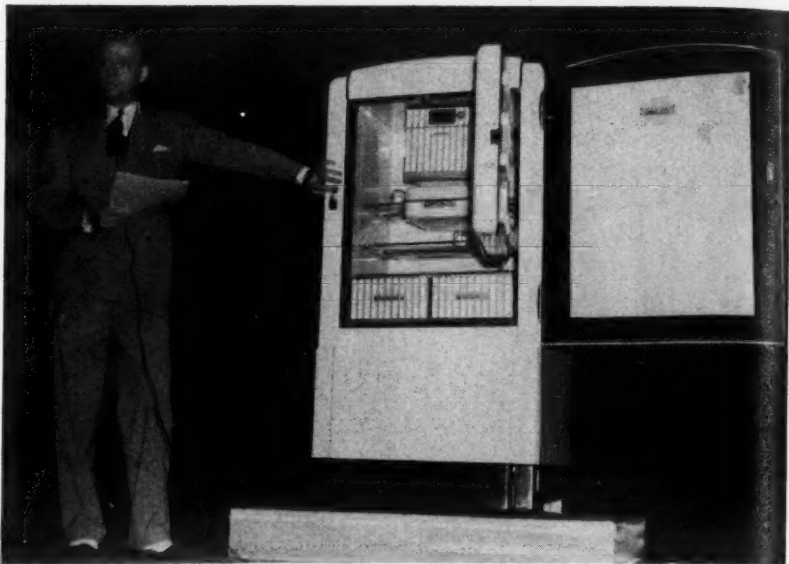
Stern Will Direct Company's Sales

HARTFORD, Conn.—Owen Webb has resigned as sales manager of Stern & Co., Inc., distributor of electrical appliances here. Francis E. Stern, president of the organization, has assumed sales management in addition to his other duties.

Apex To Gerlinger

TOLEDO — Gerlinger Equipment Co., Inc. has been appointed distributor for the full line of Apex appliances in northwestern Ohio and the southeastern tip of Michigan.

What Philco Distributors Saw At Palm Beach



W. Paul Jones, president of Philco Refrigerator Co., newly formed subsidiary of Philadelphia Storage Battery Co., introduces the 1939 "Conservador" line of refrigerators to the more than 400 Philco distributors at the recent convention in Palm Beach. Mr. Jones isn't wired to the refrigerator—he's wearing the latest in "moveabout" microphones.



Robert F. Herr, manager of Philco's parts and service division explains Philco's augmented plans for parts and service, which will tie in with the company's expansion into the refrigeration and air-conditioning field.

Niagara Frontier Dealers Given Choice of Five Promotional Methods For Range Sales Drive

(Concluded from Page 1, Column 4) of salesmen, dealer, and prospect contest.

5. An electric range show. A sub-committee composed of C. O. Curtis, H. P. Fillmore, F. L. Riehle, D. B. White, and W. S. Schmidt, the latter chairman of the electric cookery committee, will review distributor reports of their dealers' choices as to what form the campaign should take, and make a final recommendation on the basis of this survey.

Initial move toward getting the drive under way was taken at a meeting Feb. 28 in the electric cookery demonstration auditorium of the Electric building, attended by electric range manufacturer and distributor executives, utility men, selected dealers, and league officials.

Present at the meeting were: Russell P. Sackett, H. I. Sackett Electric Co. (Crawford); George Keipper, Jr., Buffalo Nipple & Machine Co. (Stewart-Warner); Merle

Bedient, L. A. Woolley, Inc. (Universal); W. S. James, Landers, Frary & Clark; D. B. White, General Electric Supply Corp. (Hotpoint).

P. W. Evans, Buffalo Niagara Electric Corp.; S. Coleman, Frank W. Wolf, Inc. (General Electric); H. P. Fillmore, McCarthy Bros. & Ford (Westinghouse); C. O. Curtis, W. Bergman Co. (Norge); R. H. Davison, Nash-Kelvinator Corp.

Meyer Goldman, Jos. Strauss Co. (Estate); F. L. Riehle (Frigidaire); Carl Rohrer, dealer; Chas. Bell, Buffalo Niagara Electric Corp.; C. K. Stein (Monarch); E. J. Delahoyde, Kurtzco Distributing Co. (Standard); C. R. Barteck, Sears, Roebuck & Co.; J. L. Johnson, Westinghouse.

Officials of the Niagara league attending the meeting included Merrill E. Skinner, president; Walter S. Schmidt, manager of the appliance sales bureau of Buffalo Niagara Electric Corp. and chairman of the range committee; and Samuel S. Vineberg, secretary-manager.

Dramatic Demonstration Closes Sales



COMBUSTIONEER is a stoker with a dramatic demonstration that closes sales for dealers. Write us at once. We'll tell how Combustioneer dealers can get orders by demonstrating the Automatic Respirator—the greatest air regulator in the world. Right before the prospect's eyes you can prove why Combustioneer gives the heating efficiency and economy which home owners want and buy.

COMBUSTIONEER is the only stoker with this tremendous sales advantage and the other exclusive features... the amazing Breathing Fuel Bed... the only Transmission which causes a scientifically correct agitation of the fuel bed... the Knee-Action Clutch... and

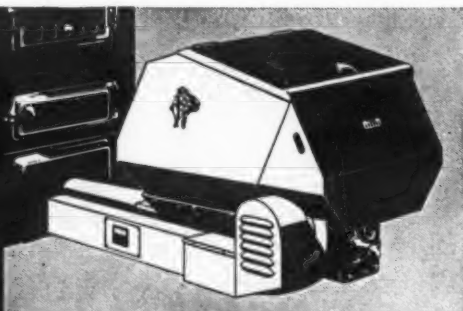
the Back-Draft Stabilizer.

COMBUSTIONEER is a pioneer stoker... its quality and dependability are known. That's a mighty valuable asset in selling stokers today. And you have a model to meet every demand... priced to sell and to offer more stoker for the money.

If you want to make money in the stoker business, by all means get the facts about Combustioneer. Just write your name and address on the margin of this page and mail to

COMBUSTIONEER DIVISION, THE STEEL PRODUCTS ENGINEERING CO. 118 Dakota Avenue Springfield, Ohio

Combustioneer
AUTOMATIC COAL BURNER
FOR HOMES, APARTMENTS, FACTORIES



Announcing a New 100% COMMERCIAL CREDIT PLAN

FOR MERCHANT & EVANS DISTRIBUTORS AND DEALERS

Merchant & Evans distributors and dealers will find this new and liberal plan to be an excellent selling advantage. Coupled with the widely diversified 1939 line of M & E compressors it will place "M & E" equipment in the strongest competitive position of its long service to the industry.

Write to your nearest Commercial Credit Co. office or direct to Merchant & Evans for Special Descriptive Bulletin.



MERCHANT & EVANS CO., PHILA., PA. U.S.A.
Plant at Lancaster, Pa.

WHAT MAKES

*Leadership?**A Statement by the
Makers of***Frigidaire**

LEADERSHIP is a sort of crowning honor. It is a reward for faithful performance. It is a reward for a single day's brilliance but it is earned only after years of rigorous application to the principles of common sense, industry and hard work. It is not won by a sudden showing of genius but by a consistently growing record of achievement. It is a reward for the daily devotion to which the leader is acknowledged. In the case of Frigidaire, the strength of its leadership lies in the daily action of increasing millions of units, together with the smaller loyalty of thousands of men who sell.

As increasing fact comes to light when the electric refrigeration business over the past few years is studied. On the one hand there may not be the reason for continued leadership. There seems to be a remarkable parallel between the success Frigidaire has enjoyed and the contribution it has made to the industry and the public alike.

Frigidaire is proud of its record of progress to increase its confidence to dealer and to public. It has been and always will be the constant aim of Frigidaire to make the dealer a building a profitable business.

On Frigidaire products. Added to a liberal business policy are the advantages of prompt selling and sales and advertising plans to help Frigidaire selling men make more money.

In its relation to the public, it is necessary, to prove to the record of engineering progress. The General Motors Motor, the Cold Control, Quaker, etc., Automatic, Range, Dishwasher, portable and other appliances, Hydrant... all these have been made contributions to the industry and particularly to the public. Even in a newer branch of its business Frigidaire has given so much valuable value that it has already become a leading factor in the electric range industry in its very line.

Frigidaire has continued over the years to fulfill its obligations to both dealer and public. In recognition of a record of performance, Frigidaire has been rewarded with carrying the burden of leadership. This obligation pledges Frigidaire to those policies that have made for leadership. It is an aggressive program that will contribute to a vital manner to the advancement of refrigeration so that both dealer and the consumer may continue to benefit.

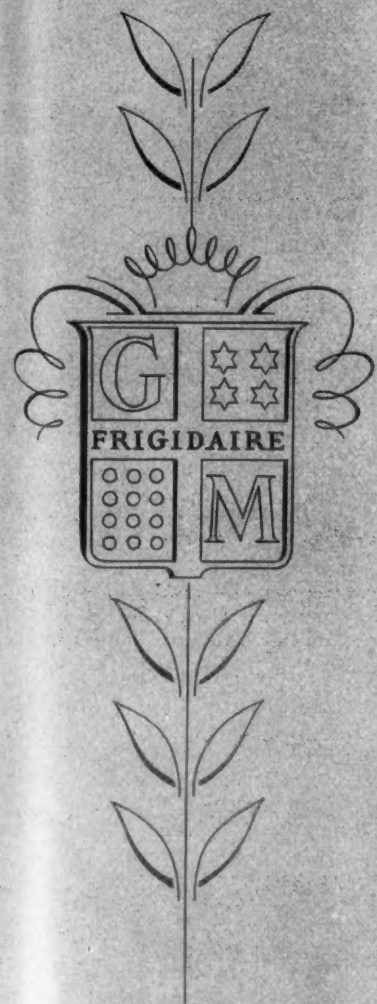
FRIGIDAIRE DIVISION • GENERAL MOTORS SALES CORPORATION
DAYTON, OHIO

Leadership...

CONTINUED

*Another Noteworthy Statement
by the Makers of*

FRIGIDAIRE



LAST FALL Frigidaire made a statement . . . and a promise. The statement manifested Frigidaire's acknowledgment of the obligations and responsibilities of leadership. The promise was a declaration that Frigidaire would continue to discharge its obligations to the continuous and joint benefit of public and dealer. We held that it was the duty of a leader constantly to lengthen his stride, ever speeding to new and farther horizons.

Today, America knows how Frigidaire has fulfilled, once again, its obligations. Today, throughout the breadth of the land, millions are hailing the new "Cold-Wall" Frigidaire as the greatest contribution to home refrigeration since the first days of the industry. Again, as in other years, Frigidaire has stepped forward with a new service, a new benefit to the public. And, in the wake of the introduction of this sensational new refrigerator, comes evidence that Frigidaire's understanding of its obligations has been endorsed without reservation. For dealers and customers everywhere are proclaiming this new Frigidaire the greatest of all time.

The entire line of new Frigidaire Refrigerators is testimony to the rigid adherence to aggressive policies. New beauty, new and greater convenience, new standards of economy, new contributions to the better keeping of food in the home . . . all these are embodied in every model in the line from the highest to the lowest in price. And in electric ranges, electric water heaters, the public now knows the sincerity of Frigidaire's contention and aim that each succeeding year the customer is entitled to receive more from every dollar spent.

Great as this year's stride has been, it is merely another milestone to Frigidaire . . . just another step to the horizon that is just as far away today as it was the first day engineers set pencil to paper. Our objectives . . . made clear to the public by sensational new engineering developments . . . made clear to the selling organization by a new selected quality dealer plan . . . cannot but create another successful selling year with profit opportunities for all.

Let us repeat a statement we made several months ago: *Frigidaire is pledged to a continuously aggressive program that will contribute in a vital manner to the advancement of refrigeration so that both dealer and consumer may continue to benefit.* . . . On this ideal, we believe, Frigidaire leadership has been built. And it will be because of this ideal that Frigidaire leadership will be maintained.

FRIGIDAIRE DIVISION • GENERAL MOTORS SALES CORPORATION
DAYTON, OHIO

THE COLD CANVASS

By B. T. Umor

Dear Old Barbados

One of the best-known men in the industry wrote us a please-don't-quote-me letter last week saying, among other things, that the Feb. 22 issue of the NEWS was the best one he had ever read.

He could get some argument on that point from Paul Witte of Scranton, Pa., who took a good crack at the editor for publishing a letter published in that issue. Here is his reply to the man who wrote the letter:

Feb. 27, 1939
Scranton, Pa., U.S.A.

W. S. Monroe & Co., Ltd.
Bridgetown, Barbados, B.W.I.

Dear Mr. Nigel Seale:

Your letter to the editor of the AIR CONDITIONING & REFRIGERATION NEWS as published in Feb. 22, 1939 issue brought good old memories back to me and I could not resist the urge to write to you personally.

Yes, as far back as 1909 the memories took me, when I first set foot on Barbados Island soil; those were the good old days—youth—reckless—and little sense. Then again in 1911 I saw the cute little place once more, but my latest recollection of the West Indies was in 1920, after I had spent a number of years in South America on electric power work and hummed around the tropics of Panama for a couple of years more.

War—donned the Blues in the U. S. Service—and by golly, in 1920 did I land in good old Jamaica for the third time in my life. Was Deck Officer of the U. S. Mine Planter "General Mills"; we used it as a School Ship and incidentally I was instructor in practical navigation and seamanship.

Well, we docked there in Jamaica on July 2 and as Deck Officer I had the men get everything ready ship-shape for the 4th. Regulations are—Flag ship on the 4th—and here I layed at a British dock—didn't seem right—looked too much to me like rubbing it in; so I told the boys—have the flags all ready but don't strike them.

Next morning while still rocking in the arms of the Goddess of Sleep, a commotion at my cabin door woke me and there stood the Quarter-master all out of breath—"Sir," he said, "those blooming Britishers now

gone and did it!" Did what? Come out and see says he, and there from a dock signal mast flew the Stars and Stripes with the Union Jack underneath and the Halyards as full of flags as they could get them. Darn decent chaps those Britishers. We flagged ship and the drinks were on us—we thought. You know those darn rascals were the most hospitable scoundrels I ever met in my life.

The Yacht Club—The Tennis Club—yes, every club had open house for us. I'll never, never, forget that visit.

Now listen Nigel, that letter in the NEWS! Did George put you up to that? I remember reading that George made a trip around the world, was it in 90 days, and spent a couple of days in your neck of the woods (even though I remember few woods there) and must have whispered while sipping on his gin and—something like this in your ear:

Nigel, old top, don't you know we are pestered in the U. S. with one refrigerator that is getting in my hair; every year they have shown an increase in excess to the national sales increase until today they are selling one out of every five refrigerators sold, and the blooming Public likes them and clamours for more, and what burns me up (here he probably went into a real low whisper) not a single line of advertising for my paper and I can't do a blasted thing about it. Well, this may be just a pipe dream of mine but do you that it wise Nigel, to ask Adolph the Hitler what he thinks of the Cultural and Intellectual Manifestation of the Jewish race?

I bet poor George got the Jitters thinking of Coldspots, so I thought I had better help him and give you the desired information. I am somewhat of an authority on the particular question you asked since I have sold personally cr. 600 of them and have taken a great pride in seeing that my customers were well satisfied and bring me new business.

I have run individual tests in homes and laboratory tests for our local outlet. The territory that I cover has now approximately 3,000 Coldspots in use (there are more than a million in use "en-total").

Since we are the only ones the public can call on for repairs and service and we only need one man on the road, who incidentally handles all of the radio work too, you can rest assured the Coldspots work out lovely here; during the last year I was begging for a second-hand Coldspot for a friend's cottage but could not find one so had to sell him a new one.

The customer that threatened to

throw his out on the street must have run out of rum or did he have too much? Now listen, if you look on the unit, you will find the manufacturer's name and address and those people are only too glad to give you all the details how to adjust and regulate them; and remember to tell the customers there that the refrigerant is sulphur dioxide and not Jamaica Rum nor Gin and Ginger.

If you fellows ever buy a Buick car down there and the feedline blocks don't throw the thing to the sharks but call up the Buick Co. in the good old U. S., they may send a mechanic down to get the darn thing to run again.

Now here is one very confidential advice on the Coldspot—if you want to make money in refrigeration and have less headaches than your fellow competitors—chuck the rest and sell Coldspots.

PAUL WITTE

P.S. If you are sincere about wanting technical data would like to hear from you—type of unit and if possible picture and I will see that you get the proper information.

They're Smart People

Outside of the fact that the editor's trip took place back in 1936—and he didn't come within 6,500 miles of Barbados—Old B.T.U. figures that Mr. Witte may have something there. Only he's tied the tin can to the wrong tail.

It does sound like a "plant"—a little controversy stirred up by Sears-Roebuck themselves. It's a neat trick: First get someone to complain; then send in replies in glowing terms.

Old B.T.U. recalls the days when there used to be "civic movements" in various localities where the home-town merchants were becoming worried about mail order competition. Apparently the merchants were sponsoring such "Buy At Home" campaigns.

Finally people figured out that smart Sears promoters were probably back of the whole thing. What such campaigns did was focus public attention on the fact that prices in the big catalog were pretty low.

The Sears theory was, it seemed, that all publicity is good publicity—and there's plenty of evidence to support such a theory, too. Henry Ford, who secretly promoted the Model T jokes, used to say: "I don't care what they say so long as they say, 'Ford.'" Abraham Lincoln and Benjamin Franklin both had the same idea on that subject.

They're pretty smart cookies, those Sears boys, and it wouldn't surprise Old B.T.U. a-tall, if they weren't behind this whole thing.

Book Review

Profitable Showmanship

"Profitable Showmanship." Authors: Kenneth Goode and Zenn Kaufman. Publisher: Prentice-Hall, Inc., 70 Fifth Ave., New York City. Pages: 174. Price: \$2.75. Review by: Robert M. Price.

Believing that business is the greatest show on earth, the authors set out in this book to show how the same principles of showmanship that pack a theater or circus tent to standing room only can be applied to the job of moving goods to dealers' shelves or to the home of the consumer.

It is a matter of record that business in general has not been playing to capacity paying crowds, and that the standing-room-only sign has only lately been removed from the corner soup kitchens. With the returning surge of buying and production, however, it will doubtless be the businessman who puts on a show—with quality as the main attraction—who will gain a larger percentage of profits from his selling efforts.

This book, in recognizing the fact that the public is ready to buy, and does buy, from the businessman who "puts on his own show" by offering a dramatic appeal to the emotions through clever attention-getting devices and proper emphasis, builds its story around a 12-point formula. The formula is designed so that, no matter what the situation, the reader will know how to apply the principles of showmanship to it.

Not content with pure theory, the book takes actual happenings in business to emphasize the points put forth. First, showmanship is defined, and the pitfalls of famous wrong guesses in putting over promotions are pointed out. Through a few simple rules of elimination, the recommended tests for paying showmanship are advanced.

These seven squints at successful showmanship are: 1. Showmanship calls for extremes. But the right extremes. Don't be different to the point of being wrong. 2. Find yourself a "natural." Don't mistake a method for a message. 3. Think it big. 4. Do it surpassingly. 5. Don't compete with yourself. Don't have more than one "it." 6. Make it crystal clear. Sincerity in showmanship also includes absolute clarity. True meanings must explode themselves. 7. Keep it a game.

After the method of putting on the show has been worked out, there are a number of points that the authors would have the businessman-showman keep in mind. They emphasize that Mr. John Q. Public likes to be the hero in every little playlet of life—and especially business life. Make him the hero of your advertising and your business show, and he will pay for the privilege.

None of the essentials of the drama are left out. In outlining the way in which to make the business

MASTERCRAFT

ADJUSTABLE PAD AND CARRYING HARNESS
The most efficient and economical equipment made for handling refrigerators safely and without scratching or marring. Pad is separate from harness and both adjustable to all styles and sizes of cabinets. Efficient, sturdy, easily and quickly applied.



BEARSE MANUFACTURING CO.
3815-3825 Cortland Street, Chicago, Illinois
Incorporated 1921

Every facility of Servel's vast factory is available to meet your refrigeration needs, whether large or small.

"good theater," every time-tested trick of pulling out the organ stops of scenery setup, heart interest, and appeals to the emotions of the buyers are applied to the show being staged for business success.

An important chapter in the book is one dealing with the advantage of putting a veil of mystery around the sales story. Taking full advantage of the buyer's natural curiosity, using part of the appeal as a teaser, putting the mystery element in selling, are all said to be parts of the sure-fire way to start the cash register ringing in answer to the customer's playful but consistent entreaty—"Don't tell me—Let me guess."

In the last few years advertising tieups with famous personalities has become a favorite, though sadly overworked, means of getting attention directed toward a product. Speaking of this practice, the authors advise the businessman to hitch his wagon to a star personality, but caution that the value of the connection will depend on the sincerity, simplicity, and naturalness of the appeal.

Further points made are those of "sticking to the script" in tested methods and sales talks, the close connection of beauty and profit, the fact that sex in advertising is here to stay (one glance through any publication will reveal the undraped truth of this statement), the element of conflict in the appeal—the public is always ready for a fight—and the necessity for action, motion in promotion.

Anticipating the attitude of many businessmen concerning showmanship in their business because of the old cry, "My business is different," the closing point is made that any business is ripe for the application of methods of smart showmanship, simply because experience has proved that the public will always pay for a good show, and there is a show for every type of business.

Dealers & Union Near Break on Closing

(Concluded from Page 1, Column 2)
The union declared that it wished to continue its regulation of evening closing, but that it wished to change the union-approved nights from Monday, Thursday, and Friday, to Monday, Friday, and Saturday.

This change, dealers believe, is predicated upon the fact that Sears, Roebuck & Co. has definitely announced and advertised that it would resume Saturday night opening after March 1. Under a truce made with the union last December, Sears had agreed to remain closed on Saturday nights during January and February.

Action of dealers in wishing to regulate their own night closing hours, it was emphasized, does not imply refusal on their part to bargain with the union regarding hours, wages, and working conditions.

Dealers, it was said, concede the right of the union to negotiate relative to the maximum hours per week that salesmen members of the union be required to work, the number of nights which they might be required to work, over-time pay provisions, wage schedules, and various other provisions legally covered by the term "hours, wages, and working conditions."

Determination of evening closing hours, however, is one that legally, morally, and soundly belongs to the individual dealer, it was felt.

Casper, Wyo. Dealer Breaks One-Day Sales Record

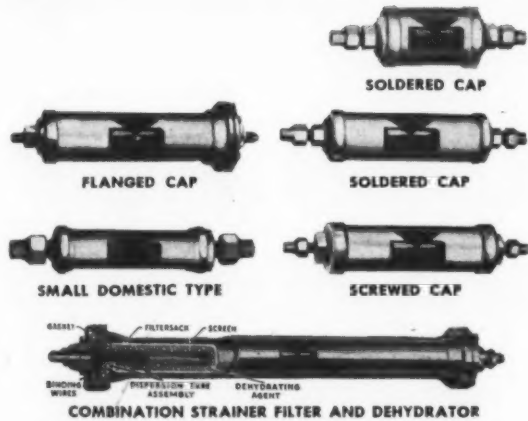
CASPER, Wyo.—More orders were received by Home Appliance Co. here during a recent one-day public demonstration of the 1939 Frigidaire refrigerator than during any other single day in the company's history. The demonstration, held at the Gladstone hotel, followed a special sales school conducted under the supervision of Earl Sipple.

THE Dri Drier DEHYDRATOR CARTRIDGE REFILL

The Mueller Brass Co. new dehydrating cartridge refill is hermetically sealed, thus keeping the dehydrating agent absolutely dry right up to the moment that you open the sealed can and place the refill in the dehydrator. The cartridge is carefully dehydrated at the factory and immediately sealed under proper atmospheric conditions in a moisture proof metal container. The hermetically sealed container is easily opened by seizing the metal lug with a pair of pliers and tearing off the top.

Cartridges are furnished with all the popular dehydrating agents and are also stocked with filter and strainer elements. The label on the container clearly indicates the drying agent with which the refill is charged.

All cartridge refills are equipped with the Mueller Brass Co. cone-shaped screen with a surface area of approximately 4 1/4 square inches which directs small particles of the dehydrating agent to the base of the cone. This leaves the center of the cone open for free flow of the refrigerant. It minimizes restriction and pressure drop. ORDER THROUGH YOUR JOBBER



MUELLER BRASS CO.
PORT HURON, MICHIGAN, U. S. A.

Write For Details Servel, Inc., Electric Refrigeration And Air Conditioning Division, Evansville, Ind.

Arizona Act Would License Servicemen

(Concluded from Page 1, Column 2) renewable annually. They could be revoked upon proof of violation of the state act, fraud or misrepresentation in connection with any refrigeration system, or misrepresentation in securing the license.

The bill provides for appointment of a refrigeration inspector at an annual salary of \$2,400, who would be in charge of inspection work and enforcement, under supervision of the registrar of contractors. Public hearings are provided on all violation charges, as well as changes in the original statute.

Unlicensed contractors or installers are punishable under the proposed act by a fine of not less than \$25 nor more than \$500, and imprisonment in the county jail not less than 10 nor more than 60 days, or both.

Refrigeration Pipeline Sought For Brooklyn

(Concluded from Page 1, Column 5) consumers more than the following rates for refrigeration to be furnished to boxes properly insulated at a temperature of not lower than 32° F.

"(a) Consumers making monthly contracts—4 cents per month per cubic foot for boxes of not over 500 cubic feet, 2 cents per month per cubic foot for boxes of over 500 cubic feet, but less than 1,500 cubic feet.

"(b) Consumers making yearly contracts: 15 cents per year per cubic foot of box."

The petition indicates that the service would be given to establishments on the ground floor only.

The city would get 6% of the gross receipts of the company, plus fees based on the amount of pipe run and the number of manholes placed in the street. The city would also be absolved from any liability that might arise from the operation of this pipe-line system.

The petition specifies pipes 12 inches in diameter o.d. with insulation, containing one 2½-inch suction line and one 1-inch liquid line.

Term of the franchise sought is 10 years, with opportunity to petition for renewal at that time.

Fruit Storage Will Be Detroit ASRE Topic

DETROIT—"Fruit and vegetable storage" will be the general theme of the next meeting of the Detroit Section of the American Society of Refrigerating Engineers, which will be held March 21 at the Lee Plaza hotel here.

Two authorities on produce storage from Michigan State College are scheduled to speak. H. A. Cardwell, research associate in horticulture, will talk on "Need of Refrigeration on the Farm." R. E. Marshall, professor of pomology, will speak on the subject, "Refrigeration Requirements of Perishables."

It will be a dinner meeting. Hugo Hutzel of Kelvinator Corp. is chairman of the program for the meeting.

Lewis Crosley Sees '39 As Good Refrigerator Year

CINCINNATI—Substantial improvement in business generally over the country and indications that 1939 will be a good year for refrigeration are reported by Lewis H. Crosley, executive vice president of Crosley Corp., upon his return from a month's tour of the country.

"From the present outlook and the volume of business being placed, we are preparing to double our production of refrigerators," Mr. Crosley declared. "A significant indication that 1939 has gotten off to a good start is the fact that a number of distributors report that deliveries to consumers' homes have started earlier and in considerably larger quantities than in previous years."

Inventories of both distributors and dealers are low, Mr. Crosley continued, and this means that retail activities are being reflected more quickly through distributors to the factory.

170% Increase In March Sales Seen By Norge

DETROIT—Orders on hand at the close of February business indicate Norge shipments of more than 50,000 units of household appliances during March, reports Howard E. Blood, president.

"Production has been speeded up as far as possible to handle the heavy backlog of open orders," Mr. Blood said. "If our anticipated shipments of more than 50,000 refrigerators, ranges, washers, and ironers is realized, this will constitute an increase of 169.5% as compared with March, 1938, when Norge shipped 29,500 units."

Just back from a coast-to-coast speaking tour in which he had the opportunity to discuss business conditions with distributors, dealers, and salesmen, Mr. Blood said he found, generally, that the "firing-line" men feel that 1939 volume in the home appliance industry will greatly exceed that of 1938.

Fales & McGraw Named Carrier Directors

SYRACUSE, N. Y.—Frederick S. Fales of New York City and Max McGraw of Chicago have been elected to the board of directors of Carrier Corp., President J. I. Lyle announces.

Mr. Fales is vice president, director, and member of the executive committee of Socony-Vacuum Oil Co. He has been a prominent figure in the petroleum industry for several years, and was president of Standard Oil Co. of New York until its merger with Vacuum Oil Co.

Mr. McGraw is president of McGraw Electric Co., manufacturer of "Toastermaster" and other electrical table appliances, and president of Central Electric & Telephone Co. Active in affairs of National Electrical Manufacturers Association, he is now a member of its board of governors.

Orders for the larger types of air-conditioning machinery are being received in greater volume than a year ago, Mr. Lyle said.

New Celotex 'Superlite' Insulation Is Designed For Commercial Jobs

CHICAGO—Of special interest to the commercial refrigeration field is a new product named Celotex "Superlite" insulation which has just been announced by The Celotex Corp.

Weighing less than 7½ lbs. per cubic foot, but claimed to have high insulation and high sound absorption value, this new insulation has been particularly developed for use in refrigerated food display cases, ice cream cabinets, soda fountains, and frozen food cabinets.

To meet the requirements for railroad refrigerator cars and refrigerated trucks, the insulation is offered in special form.

Although Celotex superlite insulation is of board form, it is a soft, non-structural insulation and is not designed for use in places where the structural strength of rigid insulation is important. However, Celotex engineers declare that this new insulation retains many of the favor-

able features found in board type insulation.

It may be fabricated, cut or bent to moderate curvatures to fit any space desired in constructing refrigeration apparatus by virtue of the fact that it is subject to very accurate dimensioning.

It is also said that Celotex superlite insulation makes it possible to reduce the total weight of all types of refrigeration equipment where rigid insulation had previously been used.

Dealer Couldn't Wait, and Sales Prove Hunch Okay

GOLDSBORO, N. C.—So pepped up was George Parker, Westinghouse dealer here, by the recent Westinghouse line showing in Raleigh, N. C., that he couldn't wait for his regular shipment of merchandise to arrive, and so he hauled several appliances back to Goldsboro in his truck.

And it was no false enthusiasm, for the very next day he sold a range and a water heater.

G-E BRINGS A NEW WEAPON TO THE WAR ON CANCER

"Air Conditioning and Refrigeration News," January 25, 1939.

G-E workers assembling the new million-volt X-ray therapy unit.

THIS SPLENDID development by Dr. E. E. Charlton under the direction of Dr. William D. Coolidge, Director of the Research Laboratories of the General Electric Company, has tremendous significance in cancer research. For the first time million-volt X-ray apparatus is made available at a comparatively low cost for conducting deep X-ray therapy, which holds so much promise in the treatment of cancer. The General Electric Company through its X-Ray Corporation is placing a powerful weapon in the hands of those who are fighting to cure the dread cancer disease.

We are glad to have contributed to this development by synthesizing a score of the gases which were among the many tested by G-E Research.

Although the safety properties of "Freon" gases had been determined, nothing was known of their electrical stability and insulating value. The evaluation of these properties by the engineers of General Electric is a brilliant piece of research work.



FREON

REG. U. S. PAT. OFF.

"Freon" is Kinetic's registered trade mark for its fluorine refrigerants

KINETIC CHEMICALS, INC., TENTH & MARKET STREETS
WILMINGTON, DELAWARE

G-E X-Ray Machine Uses 'F-12' as Insulator

SCHENECTADY, N. Y.—Using the refrigerant "Freon-12" (dichlorodifluoromethane) as an insulating medium, a new X-ray outfit designed to produce 1,000,000 volts peak at three milli-amperes or more and said to give 12 times as much radiation as all the radium possessed in this country has been constructed by General Electric Co. here for use in the Memorial hospital in New York City.

The apparatus is to be used in research work on the treatment of cancer. Heart of the system is a new X-ray tube designed by the G-E engineers. This tube is said to be equivalent in power to 8½ lbs. of radium (or \$90,000,000 worth). Radium is worth about \$700,000 an ounce, and there are but 11 ounces in the United States.

The "Freon-12" gas employed as an insulator was selected for being colorless, odorless, non-poisonous, non-corrosive, and chemically and electrically stable. In addition, it has high vapor pressure at ordinary room temperature.

At the pressure maintained in the new X-ray equipment, the gas has a dielectric strength several times that of nitrogen at atmospheric pressure, and only 100 lbs. are required to do the work of 12,000 lbs. of conventional oil in insulating the equipment.

The X-ray equipment itself is completely self-contained, including tube, transformer, metal housing. The latter is 4 feet in diameter and 7 feet long, and weighs 4,000 lbs.



Air Conditioning

61 Installations Made In New York In Jan.

NEW YORK CITY—Sixty-one installations of air-conditioning equipment with an aggregate capacity of 1,245.75 hp. were installed in the New York metropolitan area during January.

Retail stores led the list with 20 installations reported, while New York World's Fair exhibits accounted for 14 of the month's jobs. These latter installations enabled the Queens territory to rank second to Manhattan in the month's totals, with 16 jobs. The Manhattan territory alone accounted for 37 installations during the period.

Installations put into service in Brooklyn totaled six, and the additional two jobs were installed in the Bronx area.

Tabulated list of January installations, by business classification, follows:

Barber shop	1
Club	1
Hotel public rooms	2
Offices	7
Restaurants	6
Showrooms	5
Department store	1
Retail stores	20
Funeral homes	2
N. Y. Fair exhibits	14
Miscellaneous commercial	2

FOLLOW Sound Reasoning ABOUT VALVES AND MOISTURE

Blaming somebody doesn't help the problem of moisture-clogged valves a bit. Look at the facts: (1) every dealer has to service a certain number of clogged valves; (2) moisture can and does remain trapped in units despite the most careful baking and handling at the factory; (3) every time trouble occurs, some owner loses faith in the dealer or the maker, or both.

The sound thing to do is eliminate the problem. And it can be done, merely by building a simple cartridge of Activated Alumina into each unit. The Activated Alumina traps and holds moisture before it can ever collect to cause trouble. Successful permanent installation on units has already proved how well this works. It prevents the cost of special service. It rescues valuable good will. Isn't it sound reasoning to end the problem this way? ALUMINUM ORE COMPANY, (Sales Agent: ALUMINUM COMPANY OF AMERICA, 1908 Gulf Bldg., Pittsburgh, Pa.)

ALORCO

ACTIVATED ALUMINA

PREVENTS CLOGGED REFRIGERATOR VALVES

'Man-Cooler' Systems Bring Comfort To Hearth Workers

FITCHBURG, Mass.—Special man-cooler systems for the comfort of workers at the furnaces are included in an air-conditioning system being installed in the five-acre plant of Simonds Saw Steel Co. under construction here.

The system is designed to meet extraordinary comfort and ventilation requirements of the huge, windowless plant. An evaporative cooling system will use water from four of the company's wells at a flow of 1,000 g.p.h., it is estimated.

Air will be circulated through the building at a rate of approximately 400,000 c.f.m., and will be controlled through hydrostats and thermostats at four strategic positions.

Distribution of air will be through 3,000 lineal feet of ductwork. Hot air will be exhausted through 42 ventilating hoods in the roof above furnaces and other equipment generating heat. The air is to be delivered into the plant saturated at the wet-bulb temperature of the outdoor air, and it is estimated that the extremely rapid exhaustion of the air through the roof will maintain satisfactory conditions throughout.

Furnaces, ovens, more than 1,000 individual motor-driven grinders, cutters, and other machines, and offices all are in the one large room to be air conditioned.

Conditioning Cuts Drug Concern's Losses

BALTIMORE—To overcome the problem of dust accumulating on ampules used in the packaging of sensitive cobra venom solution and gland extracts, a unit room air conditioner has been installed in the filling room at the Hynson, Westcott & Dunning drug plant.

Formerly, it was necessary to discard many ampules because particles of dust on them made them unfit for packaging the venom. The packaging room was made air tight, and workers were dressed in sterile caps, gowns, and masks, but these precautions did not eliminate the dust.

Since the installation of the air conditioner, which cleans the air and ventilates the room, the loss of ampules has been cut 66%, it is claimed, and the employees' comfort and efficiency have been improved. Company officials report that tests show 15 times as many colonies of bacteria form on exposed blood agar plates in a non-air-conditioned room as in the air-conditioned room.

Natkin's Tulsa Branch Discovers Variety of Applications Brings Volume In Small Units

TULSA, Okla.—Faced with a severe slump in sales of large individual air-conditioning installations last year, the Tulsa branch of Natkin & Co., Westinghouse distributor, turned to the type of cooling job between 1 and 10 tons with satisfactory results in both volume and profit, reports Bert Natkin, branch manager.

The lush period of 1937 saw all dealers in the territory doing a great volume in the larger type of installation, Mr. Natkin says, with many of the jobs ranging between 200 and 1,000 tons.

With so many of these large jobs to work on, most major air-conditioning companies found little time to cultivate the comparatively "small fry" 1 to 10-ton installations. Last year, however, saw a complete reversal of conditions.

VOLUME AND PROFIT

Things started out very slowly, with few large installations to be figured—although Tulsa, in particular, had been phenomenal during 1937 in the number of complete building installations made. When late spring had arrived, with no large-scale jobs in sight, air-conditioning dealers of necessity turned to the smaller ones for the volume they needed.

Once in the 1 to 10-ton field, however, The Natkin organization found that the variety of applications that could be made in this range made possible a real volume of business, at a very satisfactory margin of profit.

Great bulk of the company's 1938 volume came from this field, Mr. Natkin reports. In fact, only two large-sized jobs were installed by the company last year—one of them, totaling 150 tons, was made in the Tulsa hotel, and the other, of equal tonnage, was made by Natkin for the Buensod-Stacey Co. of New York City in the Tulsa store of the S. H. Kress chain.

KEEP IN TOUCH

Some 25 such installations were made by the company in the Tulsa area last year, Mr. Natkin reports, of which the following are typical:

In the National Supply Co. building at the biennial International Petroleum Exposition, held last spring in Tulsa, the company installed two 3½-hp. Westinghouse self-contained conditioning units, to serve the display space and lounge rooms.

A ½-hp. room cooler was installed in one of the private rooms of the Municipal Hospital, Pawhuska, Okla. Owned by the hospital, the unit was installed as a permanent fixture, and is used for the comfort of any patient who rents that room.

In the barber shop in the Thompson building, Tulsa, a 2½-hp. store cooling unit was installed for the comfort of patrons of this six-chair establishment.

Seven general and private office installations were made by the company during the year, including a 2½-hp. self-contained unit placed in service in its Tulsa branch headquarters, for employee comfort as well as a promotional and advertising feature.

Other jobs in this classification included installation of a 5-hp. compressor, evaporative condenser, and air-conditioning unit to serve the engineering office, cost accounting, and purchasing departments of W. C. Norris Mfg. Co., Tulsa. General offices had been conditioned by a 10-hp. system installed in 1937, and last year's installation provided for offices located in a building not served by the first system.

SMALL INSTALLATIONS

In the offices of Julius Livingston, an oil operator, the company installed a ½-hp. room cooler for the relief of the owner's hay fever; and a 2½-hp. self-contained unit was installed in the offices of C. E. Burlingame, Bartlesville, to cool two private offices and the accounting office.

A 3½-hp. store cooling unit was installed in the Patterson Steel Co., Tulsa, and was fitted with a duct system to provide cooling for the offices of the president, the accounting department, and the engineering department. Another store cooler of similar capacity was installed in the offices of the city water and light department, Tuhlequah, Okla., of which R. C. Dohe is manager.

Conditioning equipment to serve general and private offices was installed for F. W. Evans, mining contractor of Picher, Okla. System included a 7½-hp. compressor and conditioning unit.

Stauss Drug Store, Tahlequah, was conditioned through the installation of a 3½-hp. self-contained store cooling unit.

BUSINESS BETTER

Two women's apparel shops, Lerner's in Tulsa and Sussman's in Muskogee, were air conditioned with self-contained units during the year. The Lerner installation, a temporary job to be used until the company remodels its quarters and installs a central system, employs two store units, one of 3½ hp. and the other of 2½ hp.

In the Sussman apparel shop, a 3-hp. compressor was installed for use with three 1-ton air-conditioning units in cooling the ladies' apparel department, handling dresses and fur and cloth coats. Added comfort made possible by the installation substantially increased the store's volume of business, Mr. Sussman reported, and made it possible to sell more fur coats earlier in the fall.

Residential installations included: George F. Harrington, Tulsa, ½-hp. room cooler unit to cool bedroom; L. A. Davis, Continental Oil

Co., Ponca City, ½-hp. room cooler for bedroom; Byron Berkeley, Westinghouse Electric & Mfg Co., Tulsa, ½-hp. room cooler to cool bedroom and dining room adjacent; G. M. Welling, E. H. Moore Oil Co., ½-hp. room cooler for bedroom.

Raymond Kravis, petroleum engineer, 1½-hp. compressor in basement and an EL-10 unit in the bedroom on the second floor; B. C. Fidler, Tulsa manager of American Airlines, ¾-hp. air-cooled unit in bedroom for relief from hay fever; Bert Natkin and Al Natkin, ½-hp. room coolers for use in bedrooms.

Sam Sanditen, vice president of Oklahoma Tire & Supply Co., a 3½-hp. unit and coils in connection with the hot air heating system in his new home. The system was so installed that he could condition either the first or second floor. In operation, first floor was conditioned during the day, and the second floor sleeping quarters at night.

C. R. Musgrave, vice president of Phillips Petroleum Co. and head of transportation at Bartlesville, Okla., two 3½-hp. compressors, direct-expansion coils, and forced-draft cooling tower, installed in connection with a hot air furnace system.

Conference In Oregon On Air Conditioning To Open March 23

CORVALLIS, Ore.—A well-rounded program of discussions covering both technical and non-technical phases of air conditioning has been planned for the second annual air-conditioning conference at Oregon State College, March 23 to 25.

Exhibits of equipment by manufacturers and distributors also will be a part of the conference. Earl C. Willey, professor of mechanical engineering at the university, is general chairman of the event.

Speakers on the three-day program include John James of New York City, technical advisor to A.S.H.V.E., who will discuss "Cooling Loads and Methods"; O. W. Kothe of the St. Louis Technical Institute, St. Louis, whose topic is "Design of Air Systems"; J. E. Robb, Kansas City representative of Minneapolis-Honeywell, talking on "Temperature and Humidity Control Methods and Devices"; and Dr. John B. Lagon, of the University of California Hospital, whose subject is "Air Conditioning for Health and Comfort."

Several men prominent in the air-conditioning and heating industry in Oregon also are scheduled to appear on the conference program. These include:

E. E. Carroll of the Kleenair Furnace Co., "Estimating Furnace Installations"; Albert Freeman of Western Engineering Co., "Estimating Piping and Central Plants"; R. T. Moore of Grand Sheet Metal Works, "Estimating Sheet Metal Work"; A. Glenn Stanton, president of Oregon chapter of American Institute of Architects, "The Architect's Slant on Air Conditioning."

B. W. Farnes of Control Equipment Co., "Principles of Selling"; W. R. Burton of Sandburg Furnace Co., "Air Systems"; Walter Paulson of H. C. Hastorff, Inc., "Steam Heating Systems"; E. W. Neubauer, Campbell-Norquist Co., "Oil Burners"; A. E. Findlay, Portland Gas & Coke Co., "Gas Burners"; F. H. Stephens, York Ice Machinery Corp., "Refrigeration"; Haskell Carter of Iron Fireman Mfg. Co., "Coal Stokers"; and Prof. W. H. Martin of Oregon State's school of mechanical engineering, "Tests for Combustion Efficiency."

FLASH! WMCA SELECTS BAKER SYSTEM AIR CONDITIONING



As the finishing touch to its streamlined new studios, Radio Station WMCA, New York City, selected BAKER System Air Conditioning. Automatic control of temperature and humidity, plus freedom from disturbing noises, dust and drafts, provides perfect conditions for artists and audience alike.

BAKER's complete range of sizes and long-standing reputation for high quality and economical efficiency of operation give BAKER representatives a distinct advantage in the air conditioning and refrigeration field. For details, write to

BAKER
ICE MACHINE CO., INC.
1506 EVANS ST. OMAHA, NEBR.

Branch Factories: Fort Worth, Los Angeles, and Seattle. Eastern Sales: New York, Central Sales: Chicago.

Sales and Service in All Principal Cities.

50 or 100 FT. COILS

Refrigerator Tubing! Completely de-oiled and dehydrated. Easily Bent.

PENN BRASS & COPPER CO., INC.
1930 WEST 18TH STREET ERIE, PA., U.S.A.

MOST ORDERS SHIPPED DAY RECEIVED

AUTHORITY ON MECHANICAL COOLING FOR OVER 30 YEARS

Commercial Refrigeration

York's First Quarter Sales Up 11%

YORK, Pa.—An increase of 11% in sales from October, 1938 to January, 1939, first quarter of its fiscal year, is reported by York Ice Machinery Corp.

Sales in January exceeded by more than 50% the sales for the same month last year, the company reports. Greater part of this total was for air-conditioning equipment, which formed a much larger share of the company's sales than usual.

January exceeded every month since April, 1937, in volume of air-conditioning equipment sales, the company asserts.

'Sectional' Coolers Built By Gloekler

ERIE, Pa.—A new line of popular priced storage coolers, built in sections so that they can be taken through regular door openings, has been announced by Gloekler Mfg. Co.

Three models are in the line. The first, a metal-clad storage cooler, is designed for general utility purposes. Six feet in height, the unit has an exterior of galvanized iron finished in gray, with interior ceiling and floor of this same material and walls of pine, covered with two coats of shellac. Insulation is 4 inches all around.

Second model, a low temperature storage model available in three capacities, is designed for the storage of frosted foods, ice cream, poultry, fish, or other products requiring low temperatures. These units have 6 inches of insulation, two doors, interiors of fir wood, with galvanized iron floors.

Exterior is of golden oak finished pine. Coils are 3/4-inch steel pipe, made in two sections, and suitable for "Freon," methyl chloride, or ammonia refrigerants.

Completing the line is a plain storage cooler available in heights of 7 or 9 feet, and suitable for storage of foods or beverages requiring temperatures of below 50° F. Interior of the unit is of fir wood, exterior of pine.

Entry door is full height, insulated like the walls with granulated cork or corkboard. Coolers may be had in sizes from 6 x 6 feet to 12 x 12 feet.

Double-Duty Unit Booms Delicatessen Business

OAKLAND, Calif.—Reporting January as the best month he has had in two years, despite its general reputation as a "slump" month, George K. Cohen attributes his business boom to a double duty refrigeration unit in his delicatessen in the Sixth St. "super" market here.

"The savings effected in spoilage and shrinkage, and the fact that my established trade appreciates that the foods I sell are firm, sanitary, and cold, so that they may be carried long distances, really makes my business what it is," Mr. Cohen declared.

Mr. Cohen is one of 90 food retailers who have shops in the market. Wednesdays and Saturdays are the only days the market is open for business, and this creates a rather unique job for Mr. Cohen's refrigerating outfit.

George's Delicatessen, as Mr. Cohen's store is called, occupies a space 26 feet long by 8 feet wide. The refrigeration unit, installed under the long front counter, is 22 feet in length, has nine reach-in doors, two sets of shelving, flat top for a counter, and a sloped plate glass shield the full length of the counter to protect the foods from being handled by shoppers.

A canopy over the entire space carries 24 100-watt bulbs, and the cost of electricity for all illumination and refrigeration, Mr. Cohen said, averages \$18 a month.

Coils in the refrigerating unit run the full length of the cabinet at the top of the storage compartment, and the motor and compressor are mounted in the 4-foot space at one end of the unit.

Commercial Sales Top January Quota For Georgia Power Co.

ATLANTA—Paced by sales of commercial refrigeration equipment, January dollar volume of Georgia Power Co.'s commercial appliance merchandising division shot 68.8% above the month's quota of \$8,312 to reach a total volume of 14,032.75.

Refrigeration equipment accounted for the biggest chunk of this total—\$6,450.26—while cooking and heating appliances finished a rather poor second with \$2,944.12. Breakdown for other appliances follows: ventilation, \$41.29; water heaters, \$866.50; pumps, \$1,992; miscellaneous, \$1,738.58.

The Athens division led the field for the month, running up sales totaling \$2,676.10, or 329.6% of quota.

Quota of \$300,000 in commercial electrical appliances has been set up for Georgia Power Co. salesmen to shoot at this year.

Almost half of this amount, \$140,000, is commercial refrigeration equipment, with dairies due to come in for an especially strong play.

'Hotel Size' Box Aids Aerial Photography

DENVER—Commercial refrigeration is playing an important part in aerial photography at Lowry Field, the government's aviation training school here.

A large, commercial refrigerator, hotel-size, is installed in the photo-developing room, and all films are placed in the cabinet upon arrival. Low temperature retards emulsion change, and the film keeps in a practically "new" condition for several weeks, it is claimed.

Under normal storage conditions, film emulsions tend to change quite rapidly, necessitating variations in exposure required when taking pictures. The unusual, and sometimes difficult, conditions of aerial photography in which the recruits are being trained call for quick action with the camera pre-set.

Temperature maintained in the refrigerator is determined by the type of film and the length of time it is to be stored. Huge quantities of film are used by the hundreds of fliers being trained by the government.

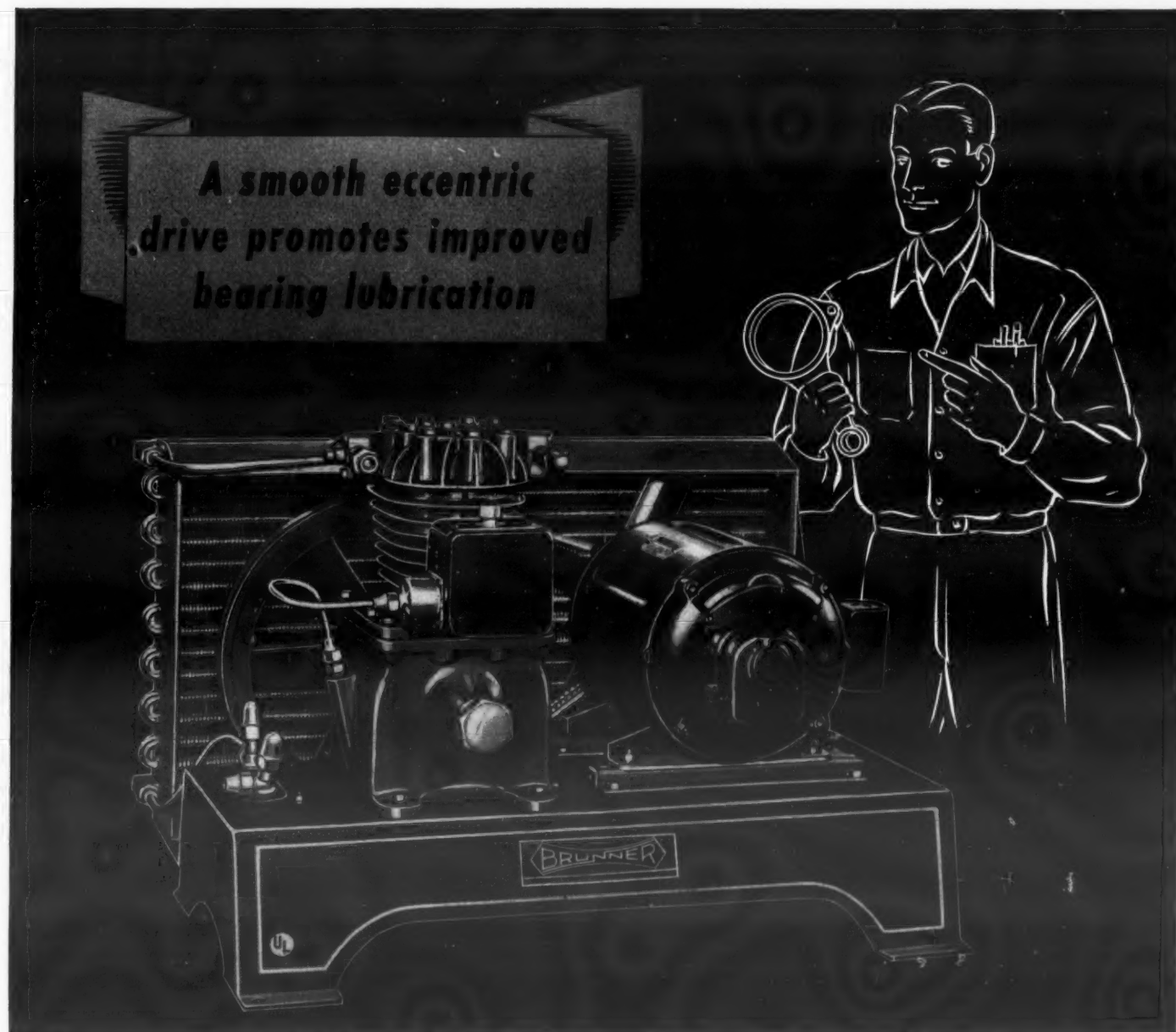
It's 'Colonel' Vilter Now

MILWAUKEE—W. O. Vilter, president of Vilter Mfg. Co. and widely known in the refrigeration industry, has been appointed a colonel on the staff of Governor Heil of Wisconsin.

Refrigeration Helps America Rearm



Hundreds of fliers are being trained in the United States' air development program, many studying aerial photography. Refrigeration is making this study a little easier. Emulsion of films changes quite rapidly, necessitating variations in exposure. By keeping film in this hotel-size refrigerator, say officers at Lowry Field, Denver, emulsion change is retarded. Immediately upon arrival, all film is placed in the refrigerator. The type of film and the length of time it is to be stored determine the temperature maintained in the unit.



Every Brunner Unit is tested for Underwriters' Laboratories Approval and Carries the U. L. Seal

Silence—that perhaps is the most noticeable feature of the Brunner eccentric drive. For here is a design which takes the noise out of commercial refrigeration, reduces it to a gentle purr. But along with this smoothness of operation comes another important advantage, **improved lubrication**. The eccentric drive efficiently moves the lubricating oil to the bearings, because the straps are always submerged in crankcase oil. There is no excessive agitation of the oil, and the oil does not leave the

case. Naturally, there is less oil traveling around the system—it's in the crankcase where it belongs... Why not take advantage of design superiorities like these—superiorities which extend throughout the Brunner construction and spell long-term dependability? A technically trained factory representative will explain the Brunner equipment best suited to your requirements. Refrigerating and air conditioning units, air and water cooled, from 1/4 to 15 H.P. Brunner Manufacturing Co., Utica, N.Y., U.S.A.

The Symbol of **BRUNNER** Dependability

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Distributors Hold Key To Success

WILL 1939 be a good year for electrical appliances? That's a question which is now in the lap of distributors. The products are designed and being manufactured—they're set until next season. The national promotional programs are arranged. The conventions are over. From here on in, it's up to the field sales organization, of which the distributors are key men.

Sometimes the uninitiated are puzzled when they note that Product A may lead in one territory, Product B in another, and Product C in a third. All three products may be equivalent in quality and service, all may be equally well promoted. The difference lies in the distributors. In one town the aggressive distributor handles Product A, and makes it the leader; and so on.

Good Distributors Overcome Promotional Handicaps

As a matter of fact, a really good distributor often takes a product which is little known nationally, poorly promoted, and far behind in the national race, and makes it the No. 1 appliance in his own territory.

What does a distributor do to merit so controlling a position? First of all, he must find the right dealers. Next, he must keep them all happy. And that's no small job, when one considers the strange bedfellows who cohabit the specialty retailing boudoir.

Must Keep Big and Little Dealers In Balance

For example: the big retailers, such as the department and furniture stores, worry and carp about the smaller specialty dealers, who sometimes cut the prices. On the other side of the fence, the smaller dealers worry about the big ones, who occasionally put on "special sales," and who get the floor traffic.

Yet each is necessary for a complete merchandising job: the big dealer for prestige and promo-

tion; the small dealer for display, service, and convenience; and both for sales.

Distributors must understand the varied problems of all the types of dealers they service, be they music stores, furniture stores, electrical contractors, hardware stores, drug stores, or whatnot. They must be specialists on each type of retailing, and at the same time be able to sketch such individual figures into the picture as a whole, maintaining a proper perspective, and keeping always dominant the colors of the manufacturer and the product.

Distributors must give merchandising counsel, keep an eye on the books, supply sales closers, direct all the promotion in their territory. They must hover in the background of the dealer associations, encourage the assistance of the utilities, promote cooperative activities, and strive to keep the peace between jealous and warring factions.

Versatility, Flexibility, Reputation Biggest Assets

Outside of his reputation for honesty and square dealing, a distributor's biggest asset is his versatility, his flexibility, his ingenuity in meeting new and constantly changing situations. He must combine financial stability and business reputation with clever opportunism and eye-opening showmanship.

In short, a distributor must be quite a man.

This editorial is written not simply as a hymn of praise to a hardworking, sometimes-kicked-around group, but as a plea for cooperation with distributors on both sides. For the distributor is truly "in the middle." He has the manufacturer on top of him, pressing for greater volume. And he has the dealers underneath him, crying for more profits. He must strive to strike a balance between the sales managers who want more dealers than is probably good for them, and the dealers who want more territory than they can probably handle.

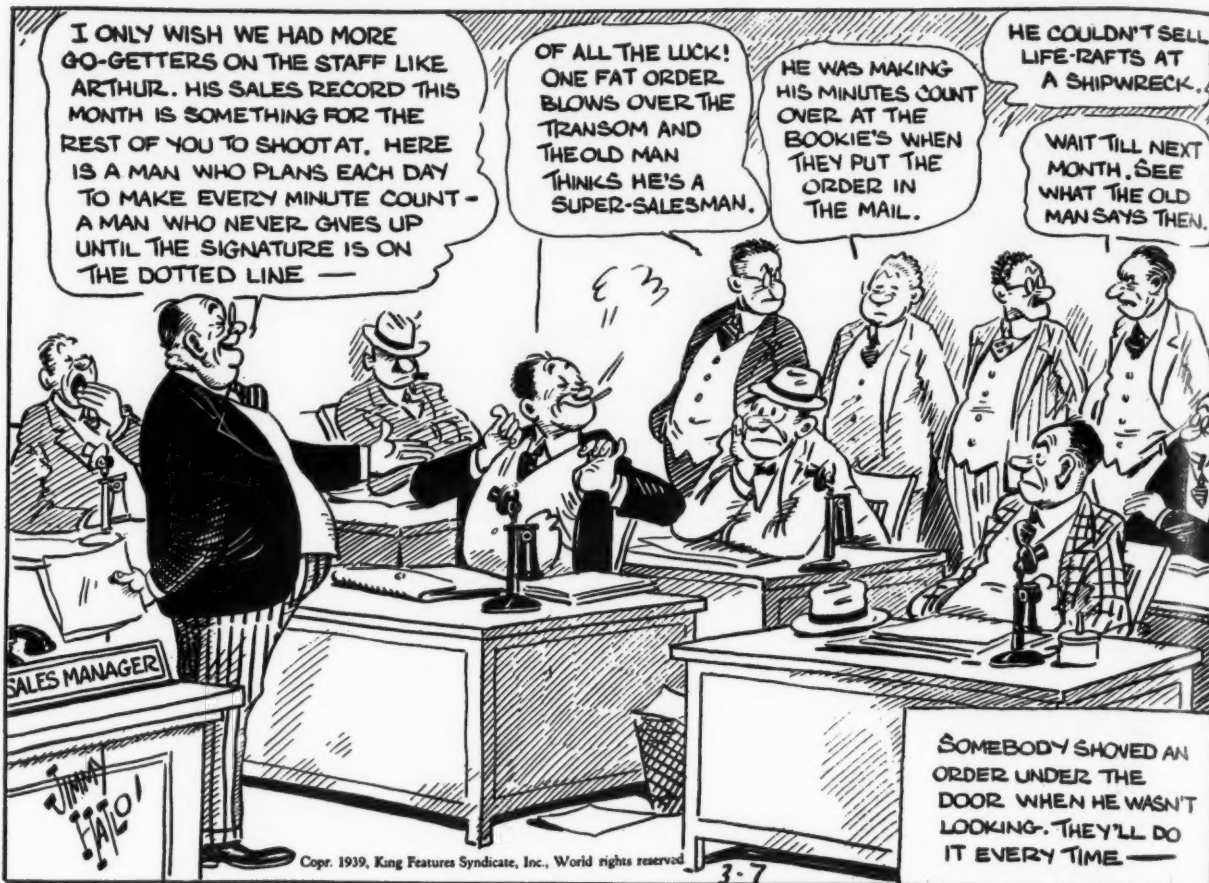
Need Cooperation From Those Above and Below

And this season the distributor is charged with a special task: the job of retraining retail salesmen for the industry. Last year's misfortunes took a frightful toll of salesmen. Hundreds of new men must be trained; scores of old ones must be decynicalized. While this task is being accomplished, manufacturers must be patient, and dealers should be helpful.

In the long run, if met halfway by both dealers and manufacturers, the nation's specialty distributors will help put the appliance industry back firmly on its feet. They know how and, furthermore, their future business life depends on their success. Because they know that if appliance selling is allowed to degenerate into an over-the-drug-store-counter price proposition, they'll be pushed out of the business.

It stands to reason then that the nation's distributors will be working extra hard this season to clean up the industry's messes, to increase volume, and to insure profits. They deserve the most enlightened and sympathetic assistance and understanding they can be given from every other factor in the business.

They'll Do It Every Time . . . By Jimmy Hatlo



LETTERS

Speeding the Return To a Sensible Plane

C. H. Miller Hardware Co.
Huntingdon, Pa.

Editor:

Your editorial "Turn to the Right" and also the article "What They Say About War Down in Washington" appearing in your Feb. 22 issue are two of the most informing and interesting articles that I have read.

If by chance either one or both of these are available in reprints I would like to have a few. If not, I would like to have two or three extra copies of AIR CONDITIONING & REFRIGERATION NEWS, Feb. 22 issue.

Kindly forward together with the bill.

If more information of this sort was made available to the general American public we would get back on a sensible plane in a much shorter time.

T. T. MILLER,
President

'If You Miss, I'll Get Hail Columbia' - -

Hegstrom Hardware
St. James, Minn.

Sirs:

You may accept this as an order, that at the expiration of our present subscription, you may enter our subscription for one year, and bill us for same. Don't miss an issue—if you do, I'll get hail Columbia from the mechanics.

We should like very much to obtain 12 back numbers of the News, namely: beginning with Volume No. 25, No. 12, Serial No. 505, up to and including the issue of Volume 26, No. 6, Serial No. 516.

If this is not possible, can you furnish us with the series of articles which ran in these particular issues which dealt with the Liquid Carbonic soda fountain?

I have two mechanics on refrigeration, and we should like to have this particular series duplicated, so that each will have it filed away.

M. K. HEGSTROM

Firm In India Can't Bring In Engineer

The Ice Machinery Mart
18-2 McLeod Rd.
Post Box 173
Lahore, India

Editor:

We thank you for your letter of Dec. 13, 1938. Though we have been trying in the past years to get into the Air Conditioning and Refrigeration line other than the Ice Making equipment but we have not met with much success. In India this business is still in its infancy and people are not much interested.

On account of little demand it is rather expensive to keep stocks and some of our friends have got stocks but the reports of their working in this line are not satisfactory. One of

them is reported to have sustained heavy loss.

We are really in need of a suitable engineer who could be of help to us in this line so that we could furnish proper designs and offer suggestions but we are not able to get any locally. We could import an engineer from U.S.A. but the volume of the business is not such as would make this possible.

We have however procured the services of a Jew engineer from Germany but now can't get the permission to import him here. This is one of the reasons why we have not made much progress in this line. As soon as we are able to arrange for a suitable engineer and have made some progress in this line we shall be glad to send you a report.

THE ICE MACHINERY MART

About Rating Training Courses In Refrigeration

Slaton Public Schools
Slaton, Texas

Editor:

Will you please give me any information you have relative to the training in air conditioning and refrigeration fields as offered by such schools as Refrigeration & Air Conditioning Institute of Chicago.

Are the courses they offer really endorsed and made up by the manufacturers as they say? How do their graduates rate with the industry? Are they accepted on a parity with graduates of engineering departments of colleges? Would you advise high school graduates or other seeking such training to get it at, say the above-mentioned school, or others?

I shall certainly appreciate any information you may give me on the above-mentioned subject.

JOHN J. JENKINS,
Principal

Answer: This school has a well-developed course, a very complete laboratory, and is endorsed by most of the leading manufacturers of refrigeration and air-conditioning equipment.

We would not rate their course on a parity with that required for graduation from an engineering college. They offer a practical course mainly for students who cannot afford to take a four-year college course and for engineers who want additional specialized training.

In the Feb. 22 issue of the News, you will find a discussion of this type of school.

Power of Trade-Names

Michael C. Brady
Engineering Services
Installation and Maintenance of All Makes and Types of Refrigerators
39A, Bath Rd.
Walsall, Staff., England

Sirs:

We have to hand volume 26, serial 513, of AIR CONDITIONING & REFRIGERATION NEWS passed to us by Messrs. King's Refrigeration Supplies of London, Eng., which has greatly interested us. We enclose herewith draft for \$6 and shall be obliged if you will forward the above publication to us each week.

We would also like full details forwarding of the following appliances by the respective manufacturers: "Vacuumator," American Injector Co.; "Hear 'Em Hiss," Henry dryer;

"Mic Drying Agent," McIntire Connector Co.; "Tools," Bonney Forge; "Thawzone A," Highside Chemicals Co.; and "America's Belt Bible," L. H. Gilmer Co.

Perhaps you will be good enough to contact these firms for us.

C. BRADY

A Scot Seeks Compact Refrigerant Charts

1034 Maryhill Road
Glasgow, N.W., Scotland

Sirs:

Many thanks for the "Red Book" catalog which I received recently, and from which I am enclosing a few slips to firms whose products are of interest to me.

Please send me on a complete set of your manuals as listed herewith, and for which I enclose British M.O. No. TC40190 for £4. (Four Pounds), which I trust covers both your cost and postage.

I may add that this type of data appears to be unobtainable in this country, and I am looking forward to the arrival of your manuals with the "dope" at your earliest.

Also I would be interested to know if it is possible to obtain, in a practical form for the pocket, graphs or tables giving both gas and head pressures for the common refrigerants, as published by Fedders in the Dec. 7 issue of the News.

ARTHUR S. SUTHERLAND

Answer: You will find tables and charts giving pressure-temperature relationships and other pertinent data on refrigerants in Chapter 3, "Properties of Refrigerants," of the Master Service Manual C-1 on Commercial Refrigeration, which you will receive in your order of a complete set of Manuals which we publish.

What They Write Us Depl.

10134 S. Bell Ave.
Chicago, Ill.

Sirs:

Perhaps it is time to renew my subscription for AIR CONDITIONING & REFRIGERATION NEWS, to make sure I am enclosing a money order to tide me over for another year.

CLARENCE HIRSCHBORN

216 N. State St.
Ann Arbor, Mich.

Sirs:

Enclosed is a money order for \$1.00 for which please send me one No. 3 Master Service Manual on commercial refrigeration.

I have several of your manuals and I can say that they cannot be beat.

MARK W. WANTY

1424 Defoe St.
Missoula, Mont.

Sirs:

I have read the News from cover to cover and it has been an always valuable source of up-to-the-minute information.

REUBEN A. STEMPEK

127 Osborn St.
Johnstown, Pa.

Sirs:

I recently became a subscriber to your paper and have found it very interesting and helpful.

Enclosed find my check for \$1.00 covering cost of one copy of Appliance Selling Today.

W. B. CRANE, JR.

Major Appliances

Philco Will Place Promotion Emphasis On 'Conveniences'

(Concluded from Page 1, Column 5)
at the cabinet's side releases the Conservador.

Thermometer indicating inside cabinet temperatures is located in the Conservador, where it is visible without opening the main food compartment. Lower shelf, not covered by the inner door, is taken up with two sliding drawers, one for vegetables and the other for fruits. These also are accessible without opening the main compartment.

Non-refrigerated compartment is located below the outer cabinet door, and is designed to provide extra storage space for vegetables and bottled beverages, as well as other reserve supplies.

Another new feature of the line is a meat storage compartment located under the evaporator, front of which is fluted to match the design of the freezer front. When not in use for storing meat, bottom section of the chest can be used for a defrosting tray, and upper section can be used for storing of an extra supply of ice cubes.

Split-type and removable shelves are in all higher-priced models, and

storage compartment, split shelf, and twin vegetable and fruit storage baskets.

Units in the "economy" series have capacities of 6.3 and 4.5 cu. ft., shelf areas of 11.7 and 8.7 sq. ft., and ice cube capacities of 72 and 37 cubes, respectively. Designed for the lower-income prospects, these units are without the Conservador feature and other convenience features.

Exterior finish of all models is Dulux, with interiors of porcelain, with bottom sections acid-resisting. Hardware is of fluted design. On standard and special models, matched blue Tenite handles are furnished on evaporator door, meat storage compartment, and twin vegetable and fruit storage drawers.

All units in the line, which are covered by a five-year protection plan, are powered by a hermetically sealed refrigerating unit, without belts, seals, gears, or stuffing boxes. The unit is equipped with an automatic overload protector.

'Coolwave' Conditioner To Be Priced at \$150

PHILADELPHIA — A portable, plug-in type air conditioner which retails for \$150 and is claimed to be "as easy to install as a radio" tops the three-unit line of York "Cool-Wave" air conditioners which Philco Radio & Television Corp. is marketing for 1939.

Known as the 40-CW, the new portable unit, which may be installed in the window of any room with not more than 155 sq. ft. (11 x 14 feet), operates on a 1/2-hp. motor and is claimed to deliver coolness equivalent to the melting of 600 lbs. of ice per day.

In addition to performing the functions of cooling and purifying the air, dehumidification, and ventilation, the new portable conditioner also is claimed to be unusually quiet in operation, and to use only about as much current as an electric toaster.

Special mounting cradle is provided for installing the air conditioner in the window, a minimum width of 24 inches being required for all such applications. Height of the window opening in which the unit is to be installed must be at least 17 inches.

The unit is finished with a walnut wood case. Power switch is located on the power cord, and starts and stops cooling action of the unit. Room air exhaust is located on the top of the conditioner. Sliding this control to the right opens the exhaust duct, and a slide to the left closes it.

The two other models in the line are the 60-CW, a console unit operated by a 1/2-hp. motor and housed in a figured walnut case, and the 90-CW, a heavy-duty unit with a 3/4-hp. motor, designed to handle a room with from four to eight people.

Price of the 1/2-hp. unit will be \$275, while the 3/4-hp. model will carry a retail price of \$400. This larger model is said to have a cooling equivalent of 1,500 lbs. of ice per day, and to be capable of serving a room of 500 sq. ft. The 1/2-hp. unit is designed to handle a room of 275 sq. ft.

All the models are air cooled, and are designed for installation at a window, but with a minimum amount of obstruction. Model 60-CW circulates 200 c.f.m. of air, and can exhaust 160 c.f.m. Three-position power switch is provided, permitting the fan only to be operated if desired. Room air exhaust and fresh air intake controls are adjustable on both models, in relation to outside weather conditions.

Philco's Bid In the Refrigeration Field



Philco's new Conservador models feature, in addition to shelf-lined inner door, a meat storage compartment, twin crispers, and dry storage section.

Maitland Chase New Kelvinator Dealer

FLORENCE, S. C. — Maitland Chase, who formerly was engaged in the sale of gas appliances, is a new Kelvinator dealer here.

C. J. Hill Plumbing Co. Takes Hotpoint Franchise

SUMPTER, S. C. — C. J. Hill Plumbing Co. has acquired the local franchise for the Hotpoint line of major appliances.

Portable Electric Ironer Made By Armstrong

HUNTINGTON, W. Va. — A portable electric ironer, weighing only 26 lbs. and having an 18-inch open-end roll, is being manufactured by Armstrong Products Corp. here.

Motor mechanism is completely enclosed within the roll. Ironing shoe is chromium plated and has an extra large heating surface. An elbow control lever leaves both hands free to guide the clothes.

Operating on a.c. current, the "Porta-lectric," as it is known, is said to be capable of handling any kind of work, from dainty handkerchiefs to heavy sheets.

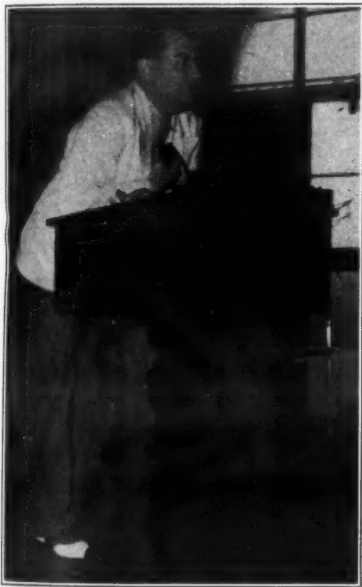
Roaster Sales Gain In Georgia Power Area

ATLANTA — Bright spot in 1938 for Georgia Power Co.'s merchandising division was the increase in electric roaster sales from 392 units in 1937 to 646 last year.

Sales of other appliances dropped off as much as roaster sales gained, the total unit decrease for major appliance sales being more than 50%, as compared with 1937 marks.

An itemized sales comparison for the two years follows: refrigerators—3,411 in 1938, 8,379 in 1937; ranges—2,480 in 1938, 6,476 in 1937; water heaters—1,670 last year, 4,106 in 1937; washers—834 in 1938, 1,871 in 1937; ironers—149 in 1938, 377 the year before; dishwashers—17 in 1938, and 29 in 1937.

'Kennally Speaking'



Thomas A. Kennally, general sales manager of Philco, chair-manned sessions of the midwinter distributor meeting in Palm Beach, Fla., at which new refrigerator models were introduced.

sliding shelves are provided to make foods stored in the back of the cabinet easier to get at. Cold dial, located above the freezer, is illuminated, and has 10 freezing speeds.

Evaporator is oversized, to permit faster freezing, and has a front panel attractively fluted. Patented ice cube releases, available on most models, permit removal of one cube or an entire tray-full, as desired.

The three models in the standard line have capacities of 7.2, 6.2, and 5.2 cu. ft., respectively, and shelf areas of 15.8, 12.5, and 11.2 sq. ft. Ice capacity in the largest model is 92 cubes or 12 lbs.; in the 6-foot model 86 cubes or 9 1/2 lbs.; and in the smaller model 60 cubes or 8 lbs.

Models in the special line have the same capacities and shelf areas as those in the standard series, but are without several of the latter's convenience features, including meat

Reprint of an advertisement in Electric Refrigeration News, 1933

NOT . . . how big
BUT how sound

Bigness is no criterion of strength. A business is strong only to the degree that its whole structure is sound. We have said before and we repeat it again—we would rather operate conservatively and soundly than strive for undue bigness with its attendant penalties. Recent events have vindicated the wisdom of such a policy.



IT takes sound engineering, precision manufacture and prompt deliveries to satisfy our type of customers . . . who are manufacturers themselves, with their own outlets to serve. We are big enough to meet the needs of America's greatest corporations . . . but compact enough to provide

executive attention to every order. Universal Cooler refrigerating machines are offered in all sizes; from 1/6 to 15 h. p. The assistance of experienced engineers is available to manufacturers interested in the application of refrigerating units to the improvement of their products.

UNIVERSAL COOLER CORPORATION
DETROIT, MICHIGAN

NO WAITING! NO WORRY!



Artic

The Preferred METHYL CHLORIDE

Every Cylinder Tested • Not Less than 99.5 Min. Pure

PROMPT SHIPMENTS



COAST
-TO-
COAST

Distribution



E. I. DU PONT DE NEMOURS & COMPANY, INC. • The R. & H. Chemicals Department • Wilmington, Delaware
District Offices: Baltimore, Boston, Charlotte, Chicago, Cleveland, Kansas City, Newark, New York, Philadelphia, Pittsburgh, San Francisco

WHY SELL AT ALL IF YOU



THE LEONARD WAY OF DOING BUSINESS IS A PATH TO A PROFIT

Dealers, tired of merry-go-round selling—lots of work without getting anywhere—are asking to hear Leonard's story for 1939



A MERRY-GO-ROUND rider can travel a long time and get off exactly where he got on.

A dealer can sell a lot of refrigerators and come to the end of the year exactly where he started. It's happened before this.

The Leonard Way of Doing Business aims at a net profit rather than mere volume.

First of all, merchandise must be kept moving. You can't make money with your capital tied up in a warehouse. Neither can we. So sales *by* dealers mean more to Leonard than sales *to* dealers.

Dealer problems must be recognized as factory problems. So ours is a shirt sleeve partnership. If you have headaches we want to know about them. We want to help you to *sell* rather than "gang up" on you to *buy*. Naturally we want you to have Leonard refrigerators in

stock. But not one red cent's worth more than you can sell.

We, too, think about net at the end of the year. We couldn't show a profit if we had to build a new dealer organization every year.

The only way we know to keep dealers from year to year is to help them to make *their* profit—and we *do* keep them.

That's the real, low-down on the Leonard Way of Doing Business. And that's why our whole program is tailored to fit you and your own sales problems.

One dealer—and a typical dealer, by the way—said the other day, "Leonard treats me as an individual. And both the factory and my distributor seem to think *my* problems are just as important as their own. My net is what seems to count with Leonard." LEONARD, 14250 Plymouth Road, Detroit, Michigan.

IT'S EASIER TO MAKE
MONEY WITH THE

LEONARD WAY

YOU DON'T MAKE MONEY?



MORE FAMILIES, FOR MORE YEARS, HAVE KEPT THEIR FOOD SAFE IN LEONARD THAN IN ANY OTHER REFRIGERATOR

This statement is in itself an additional guaranty of quality and performance—the kind of a guaranty that refrigeration shoppers appreciate. It backs up the brilliant array of selling features which they can see for themselves—or which you can demonstrate—the stainless

steel Zero-Freezer, the "Ice-Popper" Trays, the Master Dial, the Vegetable Bin, the Meat File, the Show-Case Food File, the 3-Way Len-A-Latch, the Rearranging Shelf and, of course, the economical, trouble-proof, quiet Glacier Sealed Unit.

Leonard Travels in Good Company

Albany, N. Y.	E. S. & E. Co., Inc.
Altoona, Pa.	Electric Appliance Distributors
Amarillo, Tex.	Nunn Electric Co.
Atlanta, Ga.	Lamar-Rankin Co.
Binghamton, N. Y.	Morris Distributing Co.
Birmingham, Ala.	Magic City Appliance Co.
Boise, Idaho	Bertram Motor Supply Co.
Boston, Mass.	J. H. Burke Co.
Buffalo, N. Y.	Joseph Strauss Co.
Charleston, W. Va.	Eskew, Smith & Cannon
Charlotte, N. C.	Page-Williamson, Inc.
Chicago, Ill.	L. C. Wiswell Co.
Cincinnati, Ohio	Schuster Electric Co.
Cleveland, Ohio	Arnold Wholesale Corp.
Columbus, Ohio	Appliance Distributing Co.
Dallas, Texas	Peaslee-Gaulbert Corp.
Dayton, Ohio	York Supply Co.
Decatur, Ill.	Linn & Scruggs
Denver, Colo.	Hendrie & Bolthoff Co.
Des Moines, Iowa	A. A. Schneiderhahn Co.
Detroit, Mich.	Buhl Sons Co.
Dodge City, Kans.	Mullin Furniture Co.
Escanaba, Mich.	Delta Hardware Co.
Grand Rapids, Mich.	J. A. White Distributing Co.
Harrisburg, Pa.	Knerr, Inc.
Indianapolis, Ind.	United Distributing Co.
Kansas City, Mo.	Federal Distributing Co.
Knoxville, Tenn.	Maytag Appliance Co.
Los Angeles, Cal.	Graybar Electric Co.
Louisville, Ky.	Stratton-Terstegge Co.
Memphis, Tenn.	Harry T. Wilson Co.
Miami, Florida	Major Appliances, Inc.
Milwaukee, Wisc.	Taylor Electric Co.
Minneapolis, Minn.	Enger Supply Co.
Montgomery, Ala.	Mathews Furniture Co.
Nashville, Tenn.	Nashville Chair Co.
Newark, N. J.	E. B. Latham Co.
Newburgh, N. Y.	Shapiro Sporting Goods Co.
New Haven, Conn.	H. M. Tower Corp.
New Orleans, La.	Radio Specialty Corp.
New York, N. Y.	E. B. Latham Co.
Omaha, Nebr.	Paramount Radio Shop, Inc.
Paducah, Ky.	Gleaves & Son
Peoria, Ill.	Cohen Furniture Co.
Philadelphia, Pa.	Motor Parts Co.
Phoenix, Ariz.	Graybar Electric Co.
Pittsburgh, Pa.	J. A. Williams Co.
Plattsburgh, N. Y.	A. H. Marshall Co.
Portland, Maine	Cressey & Allen
Portland, Ore.	Electrical Distributing, Inc.
Providence, R. I.	Ballou, Johnson & Nichols Co.
Richmond, Va.	Graybar Electric Co.
Rochester, N. Y.	Kemp Equipment Co.
Salt Lake City, Utah	United Electric Supply Co.
San Francisco, Cal.	Graybar Electric Co.
Scranton, Pa.	Household Appliance Distributors
South Bend, Ind.	Cloud Bros.
Syracuse, N. Y.	Morris Distributing Co.
Toledo, Ohio	Electric Range & Equip. Co.
Trenton, N. J.	Adams Distributing Co.
Tulsa, Okla.	Otasco Supply Co.
Washington, D. C.	Southern Wholesalers, Inc.
Williamson, W. Va.	Persinger Supply Co.

of Doing Business

Commercial Refrigeration

What Dealers & Service Engineers Should Know About Characteristics of Beer To Install & Service Equipment Properly

DAYTON, Ohio — Refrigeration dealers, contractors, and service men must know the "characteristics" of beer (what it is made from, why and how it spoils, the functions of CO₂ gas in beer) before they can either sell or service beer dispensing equipment properly, contends C. D. McLaughlin, Dayton engineer who has made intensive studies of beer dispensing systems and methods.

In gathering data on beer-dispensing methods Mr. McLaughlin found that first he had to learn about beer, and he traces some of the fundamental knowledge about the beverage that every refrigeration man should have.

WHAT BEER IS

Beer is a cereal beverage, explains Mr. McLaughlin, made from malted barley. It is brewed under the most sanitary conditions, resulting in a product which is called wort.

The finest grades of hops are then mixed in it to give it flavor and a high tonic value and it is then cooled to approximately 52° F. Pure strains of yeast are added and the temperature is carefully controlled to maintain an even and thorough fermentation. This fermentation action may continue for several days and when completed the product is cooled to approximately 32° F. and allowed to age or settle.

After the aging period is completed it is placed in storage tanks until ready for distribution in kegs to be dispensed as draught beer or placed in bottles or can containers and pasteurized before distribution to the retail dispenser.

Beer is rated high in food value, declared the speaker. It is sometimes referred to as liquid bread. As a food, it is often ranked with milk. In addition, there are ingredients in beer that stimulate digestion and aid the appetite, and which help to regulate body functions to promote health.

% OF DRAFT TO BOTTLE

Mr. McLaughlin collected statistics showing that there were more than 700 breweries active in the United States in 1937. There has been very little change in this number during 1938. The manufactured output for 1937 was 55,391,960 barrels (of 31 gallon capacity).

Of this amount 32,462,138 barrels were sold as bulk, or draught beer. The remainder was sold as pasteurized beer in bottles or can containers. The bulk or draught beer is not pasteurized and is therefore of a more perishable nature than that which has been treated with the pasteurization process.

Both of these kinds of beer need refrigeration, says Mr. McLaughlin.

Beer dispensed in bottles, cans, or other containers must have:

1. Adequate capacity.
2. Close temperature regulation at approximately 40° F. when ready for serving.
3. Proper sanitary conditions surrounding the distribution.

About one-half the pasteurized (bottled) output is cooled and refrigerated with the same equipment that is employed to cool and control the bulk or draught beer.

PROBLEMS OVERLOOKED

Among those who entered, or again became active, in the field of temperature control in the dispensing of beer from the tap, there was very little knowledge or understanding of the "How" and "Why" of the control of beer quality, the engineer states. Blinded, perhaps, by the apparently huge profits which they hoped to make in this field, many manufacturers of refrigeration equipment lost sight of the need for a thorough knowledge of the problems involved and the care required in the preservation of this highly perishable product.

There are certain factors which must be considered in the design of any successful equipment:

1. The equipment must be rugged and reliable.
2. All parts of the equipment must be in balance.
3. The system must be complete.

From the time that the product leaves the brewery until it is ready for consumption it must be kept under close temperature regulation. It requires study, careful planning, and efficient service to satisfactorily solve the problems involved in beer dispensing.

THREE REQUIREMENTS

The requirements in maintaining proper control of beer and ale, as outlined by Mr. McLaughlin, are three important items that must be considered in the profitable dispensing of beer to the customer:

QUALITY: Brewers make good beer. It must be dispensed in the condition as made for profitable operation.

TEMPERATURE: 40° F. seems to be the most satisfactory constant temperature to hold beer from the time it leaves the brewery until it is dispensed or served by the retailer.

If too cold when served to the customer he will not consume as much as he would if it were properly served.

Too much carbonic acid gas (CO₂) will be retained in the beer if it is kept and served too cold. This gas is released and expanded under the action of body heat and a feeling of stiffness will then occur which takes away any further desire for

more. This means less business. It is unprofitable to serve beer too cold.

Beer that is allowed to warm up and then kept in this condition will tend to deteriorate or spoil and it will be difficult to control in dispensing because of the release of CO₂ gas. The action of heat tends to liberate this gas and the beer acts "wild." This condition, likewise, is very unprofitable.

ECONOMY OF DISPENSING: This third item is of vital interest to the retail dispenser. He is in business to make a profit. The economy he obtains in the dispensing of beer will be reflected either as a profit or as a loss. He cannot afford to have it show as a loss. It is much better to serve beer at a profit than it is to lose money serving it.

The cost of the proper dispensing equipment should be included in the capital outlay required in doing business. Proper equipment will insure profitable operation and will return big dividends.

MORE THAN TEMPERATURE CONTROL

Beer, the product, requires something more than an uncertain temperature control. In order to better appreciate this statement let us consider three different liquids that are generally subjected to refrigeration:

WATER: Refrigeration of this liquid for drinking purposes is considered desirable but is not necessary or essential to preserve it from spoilage. Temperature regulation is therefore done to make it more palatable and cause people to drink more water to help wash out the impurities of the body and thereby promote health.

MILK: This liquid is subject to spoilage when kept at too warm a temperature and it is therefore necessary to refrigerate it and control the temperature at a point where it will not spoil before it can be used. Milk is considered an almost perfect food and readily sours unless properly handled. Regulation of temperature and sanitary control have become the accepted practice in handling this product.

BEER: This liquid is not only subject to spoilage from causes that affect milk but another very important item enters the problem.

During the fermentation process the liquid picks up in solution a certain amount of the carbonic acid gas which is formed in the chemical reactions which take place when the sugar compounds are changed to alcohol.

WHAT GAS DOES

It is this gas which gives the tang to beer, and which, being acid, opens up the nerves which carry the sense of taste to the brain, thus letting us get the full benefits of the many fine ingredients that make up the good qualities in beer.

It is necessary to control the amount of this CO₂ gas in solution in the bulk or keg beer, as well as the temperature. It therefore requires pressure control as well as temperature control during the time the product is in the retail dispensing establishment, and especially during the operation of setting it before the customer.

There is a definite pressure-temperature relationship affecting the gas content of beer and this should be thoroughly understood by the refrigeration service engineer. It is true that all carbonated beverages are likewise affected by this temperature-pressure relationship, but due to the fact that the bottler controls it when he fills the bottle, and there is little or no action resulting in spoilage due to heat while it is kept sealed in the container, temperature regulation to make it palatable is all that is required.

Draught beer readily spoils through re-fermentation when stored or kept

at a temperature above 55 to 60° F., Mr. McLaughlin explains. The alcohol and carbonic gas in solution retard this action to some extent. That is why the product does not re-ferment and deteriorate under the same conditions as, for instance, milk.

One of the factors required to maintain a uniform taste in any carbonated liquid is to hold the volume content of the carbonated gas that is in solution to a very close range of variation.

The carbonation of draught beer (in bulk) is what makes it difficult to handle in the dispenser's establishment. Carbonation is measured in volumes in solution. The solubility of carbonic gas in beers is approximately as follows:

American beers (except such as Michelob) 2½ volumes of CO₂
Canadian beers...3 volumes of CO₂
European beers...1½ volumes of CO₂

HOW BREWERY DOES IT

The brewery engineer maintains a temperature control within 2° F. to assure the proper volume content of carbonic gas in the beer. It is the amount of this gas in solution which predetermines the temperature at which it should be drawn. It is necessary, therefore, not only to control the temperature during storage and handling to maintain the freshness, but to continue this control right up to the time the beer is put into the container in which it is to be served.

This is where so many refrigeration systems fail, said the speaker. They are of insufficient refrigeration capacity, or so poorly designed that they cannot meet operating peak conditions and much loss is encountered due to failure to control the gas content as well as the temperature.

It is essential to control the volume content of gas in the beer at some constant point or level. The appearance of the product when set before the customer has an important bearing on his mental reactions as well.

While, therefore, an average volume content is put into the product by the brewmaster during manufacture, some of the gas is allowed to escape to form the so-called "head" or collar of foam. When the foam collar is controlled we get a uniform appearing glass of beer and also get a uniform gas content remaining in the beer. This is important.

GAS CONTENT CONTROL

It is thus necessary to consider, not only a pressure-temperature relationship due to the carbonic gas content, but also the control of that gas content at a uniform level. Charts are available showing this relationship over a wide range of temperature variations.

In the following table is shown the variation in the pressure-temperature relationship when the volume content of the carbonic gas is held constant.

Temperature ° F.	Pressure No. Sq. In.	Volume Content CO ₂
35	8	2½
40	11	2½
45	14	2½
50	16	2½

PRESSURE REGULATION

"As shown in the table, to maintain a definite volume content of gas in solution in the beer, it is necessary to control, within very close limits, both the pressure and the temperature conditions to which it is subjected," Mr. McLaughlin declares.

"Provided we can maintain control of the volume content of the gas in the beer at 2½ volumes, it is possible to deliver it to the glass in this condition."

"When we also maintain temperature control on the beer until it reaches the glass we are assured of

a condition which will give us a means of controlling the foam collar.

"Many different conditions must be satisfied to enable us to control the collar of foam and even though we comply with all of them the person who draws the glass of beer can upset our successful operation by drawing it improperly."

"Due to the necessity of maintaining a pressure balance on the entire system that dispenses draught beer a thorough understanding of the actions and reactions of beer under varying conditions should be understood."

"The control of pressure on the beer to balance the system is complicated by the fact that the gas in solution in the beer varies in volume as the temperature varies."

"This gas is evolved naturally in the process of fermentation in quantity more than sufficient to give the required content for palatability. It is soluble in liquids in varying quantities as the temperature of the liquid is varied. It is, therefore, not difficult to over-carbonate the beer or have an insufficient amount in solution when we do not properly control the temperature."

AIR OR CO₂

"Two different schools of thought have developed on this point alone. One insists that the pressure balance necessary to maintain the constancy of the gas volume in the beer and to balance the pressure in the dispensing system must be accomplished by the use of this same carbonic acid gas."

"The other insists that air must be used to prevent over-carbonization and for economic reasons. We will not discuss the merits of these claims here, but it behooves you to know and understand them. The only advice or counsel that will be offered here is this: After you have made a thorough study of both sides of the problem you should then be guided by good judgment and experience."

BEER DISPENSING SYSTEMS

Systems used in beer dispensing, says Mr. McLaughlin, may be enumerated under two general classifications:

- (a) Temperature regulating equipment.
 - (b) Pressure regulating equipment.
- Under the temperature regulating equipment are:
1. Ice.
 2. Mechanical refrigeration.

Under pressure regulating equipment are:

- (a) Carbonic gas (CO₂) in drums or containers under pressure. This pressure is reduced through regulating valves to that required to balance the pressure exerted by the carbonic gas in solution in the beer.
- (b) Air pumps. Either mechanically operated or hand operated pressure mechanism for supplying the air under pressure to balance the pressure exerted by the carbonic gas in solution in the beer.

In the service and installation requirements—problems—and remedies in retail beer dispensing, the refrigeration service engineer is the key man in this picture, said the speaker.

SUGGESTED SOURCES OF INFORMATION

"First, it is my advice that you should visit the breweries that are in your territories," he continued. "Find out how beer is made and, what is very important, how much they value temperature regulation while the product is manufactured. You will notice there a curious item. Two different thermometer scales are used in a brewery—the Fahrenheit, with which you are all familiar, and the Reaumur which was the original thermometer used in brewing beer."

(Concluded on Page 15, Column 1)



THE JOBBER WHO WORKS FOR ANSUL WORKS FOR YOU

THAT'S HIS BUSINESS, and that's why he's in business. We're proud of the Ansul Jobber Organization... as proud of these men as we are of our Ansul products. And we feel certain these Ansul Jobbers are as proud of their wholehearted, friendly service to you as they are of their business integrity. Let the Ansul Jobber near you begin serving you now!

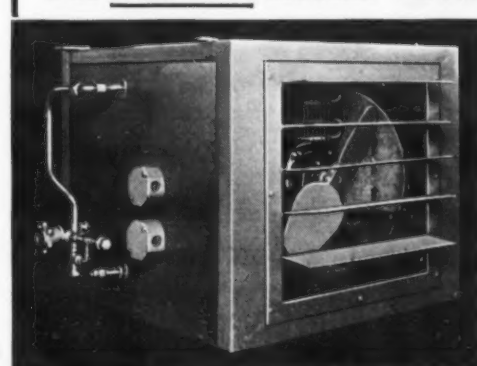
CA-4-9

ANSUL
SULPHUR
DIOXIDE
•
METHYL
CHLORIDE

MARINETTE
WISCONSIN

ANSUL CHEMICAL COMPANY

For Sub-Zero Rooms



MARLO Low Temperature Unit Coolers

The use of Electrical Heaters for quick defrosting of refrigeration coils was originated by this company and has been a feature of Marlo Low Temperature Units for a number of years.

By merely closing a switch, perfect defrosting is completed in 15 to 20 minutes.

You don't even have to remove contents of room—and no engineer is required. There is never the heavy accumulation of frost that

occurs with other types of coil installations, thus assuring maximum efficiency at all times.

Marlo Units with automatic defrosting are available.

Marlo Low Temperature Units harden ice cream in ½ the time required by other coil installations. Temperatures as low as 20 degrees below zero may be had if desired.

Send for complete information and prices.

Marlo Coil Co., 6135 Manchester Ave., St. Louis
Manufacturers of Complete Line of Low Side Equipment. W-194

Kinds of Service Work On Beer Equipment

(Concluded from Page 14, Column 5)

"The latter has a scale of 0° R. to 80° R. between the melting point of ice and the boiling point of water. Thus when they speak of a fermenting temperature of 9° they mean 9° R. and this is equivalent to approximately 52° F.; or when they speak of an aging temperature of 0° R. it is equivalent to 32° F. You will not need to use the Reaumur thermometer in your work but it is well to know the language of the brewmaster.

"You will find in the necessary equipment to economically dispense beer, many other things besides refrigeration service that you can offer the tavern keeper to enable him to make money.

"When he increases his profits as a result of your labors he should not quibble about sharing some of it with you. The soundest basis on which a retail beer dispenser should operate is to have a complete beer dispensing system.

"He will pay \$1,000 for a license (he has to pay cash because the government does not trust him to make a success of the business) and he will purchase elaborate fixtures and glassware. He is compelled by legal restrictions also to pay cash for beer.

"Then he will try to buy the cheapest kind of temperature and pressure regulating equipment. He will even go so far as to try and omit as much of this as possible."

FOR A COMPLETE SYSTEM

A complete beer dispensing system for the retail dispenser, said Mr. McLaughlin, should consist of:

1. A precooler.
2. Insulated and refrigerated beer lines.
3. Suitable means of balancing the beer pressure.
4. Good faucets.
5. Reliable pressure apparatus.
6. Good air connections and reliable fittings.
7. Tap rods, pressure gauges, etc.
8. Refrigeration equipment—that is reliable and of suitable capacity.
9. Cleanliness and sanitation—a very important item of which is the cleaning service required for the dispensing system.
10. The most important item of all is good service.

BEER SERVICE PROBLEMS

Beer service problems may be divided into three general classes:

1. Draught—the manner in which it is drawn.
 2. Appearance—the appearance after it is drawn.
 3. Taste—to the customer.
- Under this third item are several subdivisions as follows:
- (a) Foamy beer.
 - (b) Flat beer.
 - (c) Cloudy beer.
 - (d) Bad-tasting beer; sour; refermented; etc.
 - (e) Loss of control of foam texture.

"Even though the dispensing equipment is satisfactory in every respect, the bartender can cause trouble by drawing it improperly. These fellows think they know and are supposed to know their business. To remedy such troubles you will have to use diplomacy.

"You will have to know how to remedy the trouble and then win the confidence of the man who operates the dispensing equipment.

"The appearance of the beer when set before the customer is important. It may have been carefully drawn and the dispensing apparatus may be adequate but it does not have a wholesome and appetizing appearance.

"If this is caused by the container in which it is served or the person who draws it they have no right to blame it on the dispensing equipment. Clean glasses and sanitary surroundings are very important. Beer cannot retain its rich creamy head of foam in a dirty or greasy glass."

Fox Opens Branch

BENNETTSVILLE, S. C.—Fox Hardware of Hartsville, S. C. has opened a branch store here to handle the complete Frigidaire line as well as a line of hardware. Brooks Usher is manager of the branch.

'Sealube' Construction Is Feature of New Water Regulator

CHICAGO—A new "Sealube" type pilot valve construction leads the features of the Series 8000 condensing water regulators recently introduced by Perfection Refrigeration Parts Co. The new water regulators are for use with methyl chloride, sulphur dioxide, "Freon," and ammonia.

Numbers 8000 and 8100 cover sizes of 3/8 and 1/2 inch, and numbers 8200 and 8700 inclusive cover sizes 3/4 to 3 inches, inclusive.

New "Sealube" construction consists of a piston and dash pot assembly charged with oil, and permanently sealed by a flexible phosphor bronze bellows. This construction, it is claimed, permits the piston to move up and down freely, using the oil in the piston chamber as a dash pot to prevent any possibility of water hammer or chatter. The oil also acts as a permanent lubrication for all moving parts which are contained in the "Sealube" cap assembly.

By completely sealing the piston and guide assembly, these parts are no longer subject to water corrosion, sticking, or fouling by foreign matter or fine sand, it is claimed.

MOVING PARTS SEALED

Only moving parts contained in the 3/8 and 1/2-inch valves are completely sealed in the cap assembly.

Operation of these valves in the field will remain constant over a long period of time, it is said, the only wearing parts being the seat disc and bead, which are replaceable without breaking the pipe line connections.

The valves are said to be very sensitive to refrigerant pressure changes, and to deliver full pipe line capacity on a 20 to 25-lb. increase in the refrigerant pressure over the opening point.

Packless construction is a standard feature of the valve, this being accomplished by the use of a small phosphor bronze bellows, sealed at the stem and in the valve body. Refrigerant and water chambers are separated from one another, so that, in the event of failure of either of these parts, there will be no chance of water entering the refrigerant system, with consequent damaging of parts.

BELLOWS ASSEMBLY USED

A heavy-duty 300-lb. test refrigerant bellows assembly is used to assure protection from loss of refrigerant due to excessive refrigerant pressure. Efficient operation is claimed for the unit on water pressures of from 0 to 150 lbs. per sq. in.

Valves from 3/8 to 3 inches are designed for use with larger refrigeration and air-conditioning equipment. These units, it is claimed, will maintain head pressures at the same point as adjusted, regardless of refrigerating load increase or decrease.

Action of these regulators, it is said, differs from the action of modulating water regulators wherein the valve assumes a fixed position to the head pressure, and throttles at that point throughout the cycle of machine operation.

'FLUSHING' ACTION

Operating action of the water regulator series is one of cycling or flushing, which, in turn, maintains a clean seat disc and bead. Valve seat will never assume a fixed position in relation to the operating head pressures, it is said, but will cycle very slowly between the desired operating head pressures and a 5-lb. decrease in the same.

Same quantity of water is used to maintain the desired water temperature drop across the condenser as is used with the modulating type valve, except that this valve will not open until the desired head pressure is obtained, and will close when the pressure drops 10 lbs. below this maintained pressure.

Efficiency in operating is affected very little by water pressure changes of from 15 to 30 lbs., it is claimed. It incorporates in the main valve a flexible fabricated special rubber composition diaphragm, to which the main seat disc is attached, and is spring closed and water pressure differential operated.

Construction is said to eliminate the necessity for use of a large piston or other moving member, which in certain kinds of water may

stick and cause the valve to remain open and leak. A strainer is not required, due to the valve's flushing and self-cleaning action. A self-contained multi-strainer is incorporated for protection of the pilot seat only.

All features of the No. 8000 valve are integral parts of the construction of the remote pilot operated valves from No. 8200 to 8700, inclusive. These valves will operate successfully on varying water pressures of from 0 to 150 lbs. per sq. in., it is claimed.

Operation is accomplished by creating a pressure differential from one side of the rubber diaphragm to the other, this being effected by passing the water pressure from the top side of the diaphragm to the outlet of the valve.

'Little Business' Will Continue Govt. Study At Detroit Meeting

DETROIT—Second national convention of the National Small Business Men's Association will be held here June 27, 28, and 29, according to plans formulated by the association's trustees at their February meeting in Akron, Ohio, headquarters of the organization.

Delegates at the Detroit meeting will give their entire time to the relationship between government and business, in line with the stated purpose of the association "to give small business men a non-partisan voice in national affairs," DeWitt M. Emery, president of the organization, has declared.

They will check the progress made in attaining the program of immediate objectives adopted at the first convention in Pittsburgh last September and will formulate plans for further advancement of the common cause of small business, he stated. Program plans hint of fewer speakers from without the ranks, and of more time to be devoted to the detailed problems of small business, with discussions by those who are actually engaged in meeting small business payrolls.

More than 400 representatives from 32 states attended last year's meeting, and it is claimed that the association's membership has nearly doubled since that time. Local units have been formed in dozens of cities, Mr. Emery pointed out, and membership now extended into 42 states.

Last November the association queried all congressional candidates as to their viewpoint on the immediate objectives of small business, and in December commenced circulation of petitions for amendment of the Wagner Act. The association also has been working with the Social Security Board on plans for simplification of the law, and has been active in connection with the reduction of W.P.A. appropriations.

Detroit Show Makes Dealers Optimistic

DETROIT—A big year was forecast for the home appliances, air-conditioning, and building industries by exhibitors at the Detroit Builders' Show here, as sales and prospective sales at the exhibit indicated that the consumer will this year take

full advantage of the many improvements offered in the new products that make up the thoroughly modern home.

Nearly 500 displays were included in the show, one of the largest of its kind held in America. Exhibits covered everything from a complete modern home down to the tiniest gadget for lightening the housewife's task.

Local appliance dealers and department stores had some of the largest displays on the floor. The J. L. Hudson Co., Ned's Auto Supply Co., Wagner Electric Co., Crowley Milner Co., Detroit Edison Co., Good Housekeeping Shop, and others carried complete lines of all electrical appliances.

Nearly every dealer questioned on the sale of major appliances reported not only an encouraging volume of sales made right on the floor, but also a long and "hot" prospect list.

This year, dealers said, consumers are showing unusual interest in the improved models of all appliances, and the move seems to be toward the completely mechanical kitchen. A large number of replacement sales also were predicted, because of the greater economy and utility offered in the new models.

Evidence of the move toward the "complete" kitchen was the number of model kitchens set up on the floor of the show. A General Electric "Magic Kitchen," telling its seven-minute tale of the advantages of modern kitchen equipment, claimed more than its share of attention.

Air-conditioning and heating equipment including a large display of automatic coal stokers, evoked high interest from present and prospective home owners, dealers reported.



IN THIS HALF-BILLION-DOLLAR MARKET

\$464,900,000 worth of household electric refrigerators and commercial refrigeration and air conditioning units were sold in 1937. This is more than three times the amount spent 10 years ago.

It's an industry growing like a prairie fire. And the more it grows, the more service men are turning to Texaco for refrigerating compressor lubrication.

Texaco Capella Oils are thoroughly de-hydrated, highly resistant to oxidation and sludging, and extremely stable in contact with refrigerants.

There are 2229 Texaco warehouses throughout the U. S. assuring prompt delivery. Phone your nearest, or write: The Texas Company, 135 East 42nd St., N. Y. C.



Texaco Capella Oils in 6 viscosity grades, come in 1-qt., 1-gal., 5-gal. resealable cans and in 55-gal. sealed drums, assuring freedom from moisture.

Texaco Dealers invite you to tune in The Texaco Star Theatre—a full hour of all-star entertainment—Every Wednesday Night—Columbia Network—9:30 E.S.T., 8:00 C.S.T., 7:00 M.S.T., 6:00 P.S.T.



TEXACO Capella Oils

FOR ALL TYPES OF REFRIGERANTS

Commercial Service

Correct Methods of Testing Solenoid Valves & Cold Controls Described

In 1935 and 1936 solenoid valves and cold controls were incorporated in Russ soda fountains for the first time. Service work sometimes involves these devices and some service engineers may not be familiar with their operation. As an aid in deciding whether these devices are causing the trouble, and what to do then, Messrs. Black and Seitz have prepared an outline of proper test methods.

This is another in the weekly series of articles published in AIR CONDITIONING & REFRIGERATION NEWS on installation and servicing of soda fountains, counter-type ice cream freezers, and frozen foods display cases.

By Arch Black and Dean C. Seitz

Some of the devices, such as solenoid valves and cold controls used on the 1935 and 1936 Russ soda fountains, had not previously been used on soda fountain applications.

Proper method of testing solenoid valves and cold controls when used on soda fountains may not be familiar to all service engineers, so this article will be devoted to the recommended methods of testing solenoid valves and cold controls used on the Russ soda fountains.

In the 1935 Russ soda fountain two solenoid valves, manufactured by

the Automatic Products Co., were used. The manufacturer's number of the solenoid valve was 73-R.

How To Test the Solenoid Valve

The solenoid valve is a magnetically operated suction line shut-off valve. It would naturally be assumed by the service engineer that if the temperature of the cabinet was too warm, the cold control switch should be in a closed position allow-

ing current to pass through the solenoid valve, thereby permitting it to open.

Assume that the temperature of the ice cream compartment of the soda fountain is too warm, but that the solenoid valve is not open. In such a case, the service engineer would probably think that the solenoid valve was defective and most likely would replace it without any further analysis of the trouble. It is not necessarily true, in this example, that the solenoid valve is defective or that the magnetic coil has been burned out.

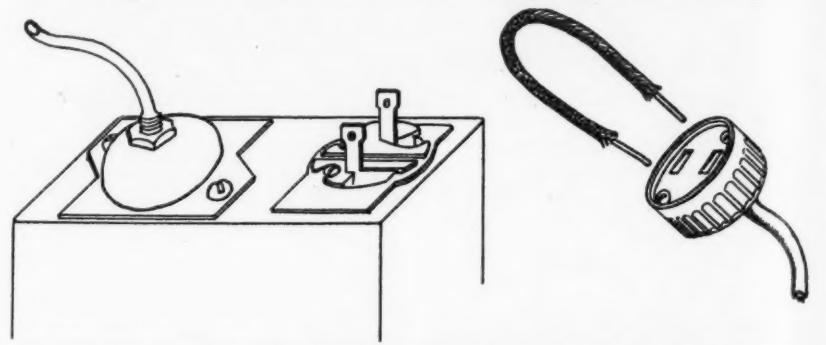
Suppose that the ice cream cold control thermal bulb had lost its charge. The same symptoms would prevail, and replacing the solenoid valve would not correct the trouble. It is the responsibility of the service engineer to be able to diagnose troubles of this character and correct them in the proper way.

In the previous discussion of the solenoid valve, it was stated that the magnetic coil of the valve was strong enough to lift the valve only when the difference in pressure between the inlet and outlet of the valve was less than 50 lbs. This point applies particularly to the solenoid valves used during 1935, manufacturer's model No. 73-R.

This point is most important and must be kept in mind by the installation engineer and the service engineer. In the example given above, in which the ice cream was receiving no refrigeration, assume that the water was receiving refrigeration and that the solenoid valve controlling the water refrigeration coil operated normally.

Under these conditions, the pressure on the outlet side of the ice cream solenoid valve would corre-

Fig. 1—How To Test Solenoid Valve



To test the solenoid valve the cold control must be "removed" from the electrical circuit. Inserting the U-shaped wire in the plug of the cold control will accomplish this.

spond to the crankcase pressure at the condensing unit. This pressure might be anything from a few inches of vacuum up to 10 or 12 lbs. of pressure. The pressure on the inlet side of the ice cream solenoid valve is probably between 65 and 70 lbs. due to the fact that no refrigeration has taken place in the ice cream compartment and consequently the pressure of the gas in the ice cream refrigeration coil will correspond to its temperature. It is therefore possible that the pressure differential between the inlet and outlet sides of the ice cream solenoid valve will be greater than 50 lbs. Under these conditions the ice cream solenoid valve (Model 73-R) would never open.

A slight humming noise would be heard at the valve because of the current passing through the coil endeavoring to lift the valve, but unable to do so because of the large difference in pressure between the inlet and outlet sides.

PRESSURE DIFFERENTIAL

It should be pointed out here that it is only because of the large area of the seat of the special solenoid valve used on the soda fountain that the valve will not open when a pressure differential of 50 lbs. or more exists between the inlet and the outlet sides.

The average solenoid valves designed for service in the liquid line of a system will lift against a much greater pressure differential due to the fact that the area of the seat is much less. It is only on this particular application of a solenoid valve in the suction line that the problem described above will occur.

A pressure differential between the inlet and outlet sides of the solenoid valve may also occur at the time of the installation of the soda fountain if the condensing unit is started before the electric action of the cold control and solenoid valve is made. Likewise the same condition may exist each time the customer defrosts the ice formation on his water bath refrigeration coil.

If the customer uses warm water to melt off the ice in his water bath, and at the same time turns off the cold control switch, then a high pressure may be developed on the inlet side of the solenoid valve and a low pressure on the outlet side of the valve.

ADVICE TO OWNERS

To avoid this condition, the customer should be advised that the ice formation surrounding his water bath should not be removed when the water bath compartment is cleaned and flushed. It is merely necessary to drain the water from the compartment and sprinkle clean water over the ice formation.

The customer should likewise be advised that it is unnecessary for him to turn the on-and-off switch to the "off" position when cleaning his water bath. If the switch is allowed

to remain in the "on" position, any possibility of a large differential in pressure between the inlet and outlet sides of the water bath solenoid valve will be eliminated.

As is apparent from the discussion above, the service engineer must first make certain that the difference in pressure between the inlet and outlet sides of the solenoid valve which he is about to test is less than 50 lbs. To equalize the pressure of the inlet and outlet sides of the solenoid valve, it is recommended that the service engineer place a 1/4-inch copper line jumper between the head pressure gauge connection and the crankcase gauge connection on the condensing unit.

LATER MODELS

By allowing a small amount of high pressure gas to enter the crankcase of the suction line of the system, the pressure in the suction line (which is the outlet pressure of the solenoid valve) can be raised so that the differential between the inlet and outlet sides of the valve will be less than 50 lbs.

On the later models of solenoid operated soda fountains, Russ eliminated the hazard outlined above by using a larger and stronger pilot-operated solenoid valve for the water bath refrigeration circuit.

Fountains having one large size solenoid valve and one small size solenoid valve, manufactured during 1936, will not be subject to the problem described above. The large size solenoid valve will be found on the suction line leading from the water bath refrigeration coil. The small size solenoid valve will be found on the suction line leading from the ice cream refrigeration circuit.

Replacement solenoid valves of either type may be obtained by writing directly to the soda fountain manufacturer. Since these valves are special, they should not be ordered from the manufacturer of the solenoid valve but rather from the manufacturer of the soda fountain.

SOLENOID VALVE TEST

To proceed with the test of the solenoid valve, first remove the switch plug of the cold control operating the solenoid valve in question. This switch plug is removed by turning it clockwise and pulling outward at the same time. (See Fig. 2—Feb. 22 issue.) Then, take a short piece of insulated wire and skin back each end approximately 1/2-inch. (See Fig. 1.) Now bend the wire in the shape of a "U," placing one end in each slot of the switch plug. A small spark should be visible and the solenoid valve should open.

The operation just described short circuits the cold control, completely eliminating the cold control as a possible source of trouble, for the current now flows directly from the building circuit through the "U" wire, through the solenoid valve and back to the line.

(Concluded on Page 17, Column 1)



"A steady stream of inquiries is a definite indication that your paper (Air Conditioning & Refrigeration News) reaches the field in which we are interested."

-- J. H. Wilson, Adv. Mgr., Sherer-Gillett Co.

The Letter:

"Please ship to us, at once, the following: 1 Model 1210, 10' length Vegetaire, complete. . ."

That is the sort of letter we like to get. The above quotation is from one we probably wouldn't have received had it not been for our weekly advertisement in your paper. We thought you'd like to know about it.

The letter in question came from Havana, Cuba, and the refrigerator is in transit.

We've sold refrigerators in Hawaii—and your paper is responsible for our original contact with our dealer there. These export connections are in excess of what we hoped to get from our advertising with you.

Our advertising with you is for the purpose of keeping our name before the refrigeration dealers of this country who are now or may in the future be interested in a commercial refrigerator franchise. A steady stream of inquiries is a definite indication that your paper reaches the field in which we are interested.

Yours very truly,

SHERER-GILLETT COMPANY,

J. H. Wilson,

Advertising Manager.

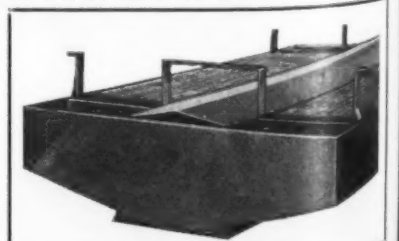
The world-wide circulation of THE NEWS has been productive of profitable inquiries and a very substantial volume of sales in foreign markets for many advertisers.

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Air Conditioning & Refrigeration News
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Tested and proven successful in the laboratory and in hundreds of Walk-in Coolers, the Rempe AUTODRAFT is still the outstanding unit from every standpoint. Cools to the desired temperature, maintains a high relative humidity, circulates into every corner of the refrigerator, yet eliminates condensation and a "rainfall drip." Write for free, valuable data.



REMPE AUTODRAFT UNIT COOLER
REMPE CO., 340 N. SACRAMENTO BLVD., CHICAGO

Proper Testing Will Locate Defective Solenoid Valves and Cold Controls In Service Work

(Concluded from Page 16, Column 5)

In other words, the loop of wire inserted in the switch plug performs the same function as the cold control switch when it makes contact. If this test of the solenoid valve allows the valve to click open and click shut as the contact is made and broken, it has definitely been established that the solenoid valve operates satisfactorily and is not the cause of any trouble.

On the other hand if the solenoid valve does not open, one of two things may be possible. First, if there is a slight humming noise in the solenoid valve, although it does not open, it probably means that current is passing through the valve, but that the valve is stuck in the closed position.

This sticking may be due to either dirt or grit caught in the inner guide tube of the valve, or it may mean that an excess of solder paste was used to solder the solenoid valve in position in the suction line, and a portion of the solder paste entered the valve and caused it to become gummy. If the humming noise is present and the valve does not open, the valve should be removed and flushed out with either alcohol or carbon tetrachloride. It may then be replaced and the test repeated.

Second, if after making the test, it is found that the valve does not open and there is not any humming noise, there is no question but that the valve is being held in either the open or closed position. Obviously the cause of the trouble must be eliminated or it will repeat on the replacement valve.

CORROSION ON CORE

A valve stuck in the open or closed position is probably due to corrosion on the steel core of the valve stem. This steel core moves inside the copper guide tube. Any moisture in the system will corrode the steel core even before it attacks the needle of the expansion valve. The steel core after it has been corroded will stick in any position, and not drop by its own weight as it should.

There is only one remedy and that is to replace the defective valve. It is always advisable to install a drier in the system immediately, for the trouble will again repeat if the moisture is not removed from the system.

The test, described above will definitely determine for the service engineer whether or not the solenoid valve is the cause of trouble. The test may be applied to either the ice cream solenoid valve or the water cooling solenoid valve. Bear in mind that before the test is started the pressure between the inlet and outlet sides of the valve being tested should be equalized or at least brought within 50 lbs. of each other.

Testing the Cold Control

A defective cold control is one which has lost its charge of gas from the thermal bulb. The bulb and power element of the cold control are charged with refrigerant gas which expands and contracts as the temperature of the bulb increases or decreases. A cold control which has lost its charge of gas will hold the switch of the cold control open continuously.

Under these conditions, the solenoid valve will remain closed permanently and no refrigeration will be obtained from that circuit. Since this symptom of no refrigeration is exactly the same as that caused by a burned out solenoid valve, it is necessary for the service engineer to decide whether the solenoid valve or the cold control or both must be changed.

The diagnosis that the cold control must be changed is only made by the process of elimination. It is first necessary to test the solenoid valve as previously described. When the solenoid valve with the cold control short circuited by means of the "U" wire clicks open and closes normally, it is definitely established that the trouble is either with the cold control or with the wiring inside the cold control.

To check completely the cold control, it must be removed from the panel in which it is located by removing the screws which hold it in position. With the cold control removed, examine the sides of the bakelite case in order to locate the removable small bakelite plug which

hides the screw which in turn holds the cover in position.

After prying out this small bakelite plug, remove the screw and the cover from the cold control. Now grasp the bulb of the cold control with the hand. The heat of the hand should increase the pressure inside the power element sufficiently to close the switch. If the switch remains open, there is no question but that the cold control bulb has lost its charge.

If the cold control switch was in the closed position when the case cover was removed, operate the switch by hand several times. If it takes an appreciable force to open the switch, although it closes by its own power, the cold control is perfectly satisfactorily and the trouble must be looked for in either the wiring of the cold control or in the wires connecting the cold control and the solenoid valve.

From the above discussion it is obvious that by the process of elimination a defective solenoid valve can be located, or a defective cold control can be determined, or if they both check satisfactorily, it has been definitely established that the trouble must be in the wiring between the two devices.

Book on Refrigerants Issued By Ansul

MARINETTE, Wis.—Second edition of Ansul Refrigerants, brought up-to-date and enlarged to 68 pages, with new illustrations, charts, and tables, is now ready for distribution by Ansul Chemical Co.

Original edition of the book was published in 1935 in loose-leaf form, with the idea that new additions or corrections could be added or substituted. Inception of Ansul News Notes as a house periodical, however, provided a medium for the reporting of new information, particularly results obtained by the company's research staff.

For this reason, the second edition of Ansul Refrigerants is a bound-leaf booklet.

Included are such subjects as complete data on sulphur dioxide and methyl chloride, comparison of refrigerants, practical use of tables and charts, lubrication, handling refrigerants, measuring charge, methods of temperature control, compressor data, suction-line pressure drop, cylinder sizes, valves and equipment.

Kold-Hold Introduces Holdover Cabinets

LANSING, Mich.—New holdover-type cabinets with sealed construction, designed for both ice cream and frozen foods products, were shown for the first time last month by Kold-Hold Mfg. Co.

Kold-Hold "holdover plate" refrigeration is used along the interior liner to furnish the refrigeration. The Kold-Hold heat exchanger-accumulator employed on this unit is claimed to permit the 100% use of evaporator surface without frostback.

One of the features in these cabinets which Kold-Hold points to is the fact that there are no tubes, brackets, or projections within the storage space.

New Mills Oil Separator Optional on Compressors

CHICAGO—Mills Novelty Co. is offering a new oil separator as optional equipment on all compressor models built by the company. The separator incorporates a section of "Thermek" tubing which serves as a means of removing oil from the refrigerant.

As the refrigerant gas passes over the spine fins of Thermek tubing, drops of oil collect on the fins and finally drip down into a reservoir at the bottom. When the oil in this reservoir reaches a predetermined level, a float valve opens, permitting the oil to return to the crankcase of the refrigerating machine.

Company officials expect that a great many of the new oil separators will be supplied this year as an integral part of Mills refrigeration equipment.

Suction Throttling Valves Designed To Prevent Freeze-Ups Introduced By Electromatic

CHICAGO—Two new suction throttling valves designed to protect evaporators from freeze-ups or undesirably low temperatures have been introduced by Electromatic Corp.

The new valves are of two types, "RT" and "RP," identical in general appearance except for the temperature bulb and capillary tubing.

The RT valve is temperature actuated, and has a small temperature bulb on the end of 5 feet of capillary tubing. This valve has the appearance of a large expansion valve.

It is intended for installation in the suction line to prevent freeze-ups. Adjustment is said to be simple, requiring the removal of the bottom cap to expose the adjusting stem, which is turned clockwise to raise the wide open temperature and counter-clockwise to lower it.

Valve RT is available in three different temperature ranges, and is applicable to air conditioning and water cooling, commercial refrigeration, and low-temperature refrigeration.

There are other applications for the RT type in addition to its freeze-up prevention function, one of the commonest being its application on the suction lines of fan-type unit coolers or cold diffusers, in which case the bulb is taped to the suction line.

Any number of different evaporators on a central system may be controlled by their own separate RT suction throttling valve, it is said.

To illustrate how the RT valve

works, an example is given by Hal McPherson, Electromatic sales manager.

"Suppose we have a sweet water bath on a multiple installation," Mr. McPherson explains. "The low-pressure switch is set to open at 18° F. It is quite obvious that there is danger of freezing the bath before the other loads are satisfied.

"To prevent this freeze-up we install a type RT suction throttling valve in the suction line from the coil in this bath at any convenient point before the line joins the main suction line.

"The bulb is now immersed at the coldest point in the sweet water bath and is frequently fastened to the evaporator.

"The cycle of operation is as follows: when the machine starts up the bath is warm and the RT valve orifice is wide open. In this position its resistance to flow is only that of an open globe valve. The orifice will remain wide open until the temperature for which it is adjusted is reached.

"In the present example let us say that the valve is adjusted to protect a 40° bath. If the temperature of the bath falls below 40° F. the capacity of the suction line will be reduced by the closing or throttling of the RT in accordance with the table.

"The adjustment of the valve can be such, for evaporators not requiring full ½-inch O.D. suction line capacity, that complete shut off may

be effected at a much higher temperature than shown in the preceding example.

"For instance, if ½-inch O.D. tubing is ample in size the valve may be set to be wide open at 58° F.; hence, only 50% open at 40° F., thereby assuring tight shut off at 23° F."

Type RP valve is pressure actuated, and the actuated feeler line is commonly run to the evaporator it is intended to protect.

The RP valve also is furnished in three different temperature ranges, and is adjustable in the same manner as type RT.

New Process For Bonding Of Metals Developed

NEW YORK CITY—A new process to join "Everdur," steel, and copper into one unit has been developed by Handy & Harman, maker of precious metals here.

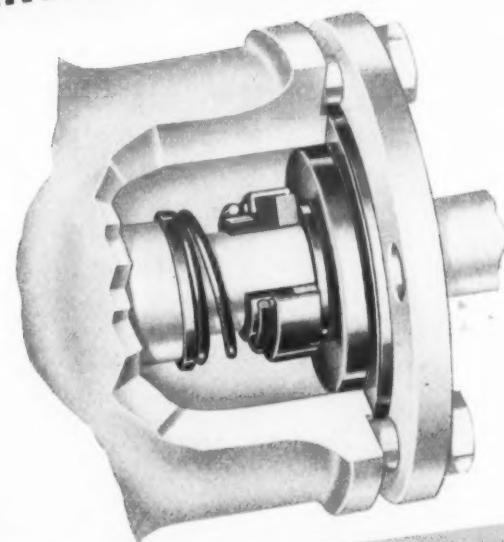
Handy & Harman's problem was to make a certain part for an electric refrigerator, component materials being Everdur, steel, and copper.

In the process, the outer shell of Everdur is brazed to the steel center section which at the same time is joined to the copper tube.

The alloy used is a low-temperature composition having a medium silver content, known as "Easy-Flo." Work is done at a temperature of 1175° F., using a flux fully active at 1100°. High strength and ductility of the bond make the completed assembly as sound and gas-tight in service as a solid piece of metal, it is claimed.



YOU NEVER GAMBLE
WITH THE COST OF MAINTENANCE . . . OR
WITH CUSTOMER GOOD-WILL WHEN YOU
USE ROTARY Replacement SHAFT SEALS
FOR REFRIGERATION COMPRESSORS



UNIT
1115



ROTARY SEAL COMPANY
 803 W. MADISON STREET • CHICAGO, ILLINOIS

Jobber Activities

Langsenkamp Buys Stock Of South Bend Supply

INDIANAPOLIS—F. H. Langsenkamp Co., refrigeration supplies jobber, has purchased the refrigeration stock of the South Bend (Ind.) Supply Co. for sale by its South Bend branch store, reports F. H. Langsenkamp, Jr., treasurer.

South Bend Supply Co. has an established plumbing supply business, which was not affected by the purchase. All the refrigeration equipment involved in the transaction was absorbed in Langsenkamp's South Bend branch, which had been opened the same week that South Bend Supply started handling refrigeration supplies.

Addition of G. A. Post, formerly of New Orleans and Philadelphia, to the Langsenkamp engineering department also has been announced by the jobbing company. The company's 1939 parts catalog is expected to be off the press about March 15, Mr. Langsenkamp reports.

50 Parts Makers Will Exhibit Products At New England Show

SPRINGFIELD, Mass.—Fifty refrigeration parts manufacturers are expected to show their products during the parts and supplies show planned by the New England Refrigeration Jobbers Association at the Hotel Charles here March 24 and 25.

Feeling that a closer friendship should be encouraged between refrigeration field men and themselves, members of the New England Jobbers Association are sponsoring the show with the idea of enabling territorial distributors, dealers, and service organizations to acquaint themselves with manufacturers' latest products.

Prime purpose of the show, which will be conducted on a registration basis, is educational. It is felt by the jobbers that all refrigeration men are desirous of obtaining all possible information concerning the advancements in the industry. A show of this type will offer New England refrigeration men a chance to obtain this information, without the time and expense of traveling long distances to conventions.

Closer association between jobbers and service men, the association members feel, will do much to enable the discussion and settlement of conflicting problems and ideas. Result will be that both parties will gain a better understanding of each others' problems.

An attendance of 500 persons at the two-day show is assured, the association reports. Several manufacturers have planned contests in connection with their exhibits.



Ask for
VIRGINIA
EXTRA DRY
ESOTOO
V-METH-L

at any
VIRGINIA JOBBER
you'll find
a complete stock
of quality parts,
supplies and
refrigerants—
and real service

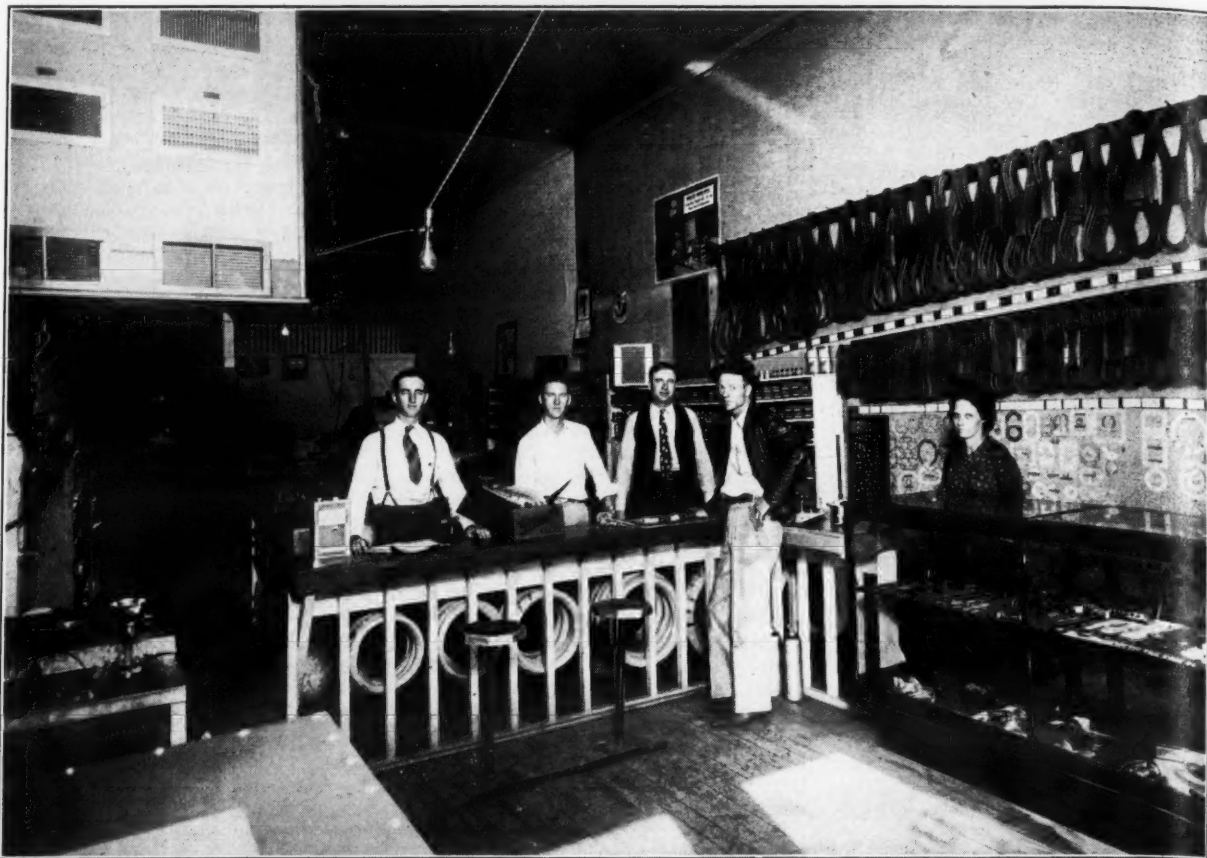
**VIRGINIA SMELTING
COMPANY**
WEST NORFOLK, VIRGINIA

KERO TEST
Valves and Fittings
The Standard of the
Industry
Kerotest Manufacturing Co.
Pittsburgh, Pa.

Dayton
V-BELTS
Silent, vibrationless, dependable, long-lasting. Powerful grip prevents slippage. A nearby distributor carries a complete stock for appliances and machines.
THE DAYTON RUBBER MFG. CO., DAYTON, OHIO
World's Largest Manufacturer of V-Belts

DEHYDRATED AND SEALED
LINDERME
SEAMLESS
Copper
TUBING
LINDERME
TUBE COMPANY
CLEVELAND OHIO, U.S.A.

A Refrigeration Supply House In Texas



Real veterans in the refrigeration game are Mr. and Mrs. U. C. Boyles, who operate the Refrigeration Supply Co., refrigeration parts and supply jobber in Dallas, Texas. They both started out with Cox & Blackburn, first Frigidaire distributor in Dallas back in the early '20's. Here they are pictured in their own new store. Left to right: Dewey Wright and Harold Farrar, employees; Mr. Boyles, a customer by the name of Jolley, and Mrs. Boyles. Top left is a panel of Hart & Cooley air-conditioning grilles; lower left can be seen part of the refrigerant drum rack and cooler which is of their own design.

Woman Jobber, on Call For 24-Hour Service, Finds That Best Way To Keep Customers Satisfied

By Robert Price

OMAHA, Neb.—"A man's work is from sun to sun, but a woman's work is never done." That old chestnut certainly rings true when the woman is a refrigeration jobber, according to Mrs. P. O. Jones of United Supply Co. here, for she finds that the best way to keep old business and get new accounts is to be on call for 24-hour service.

"It's the extra services that count," says Mrs. Jones, "and to keep customers satisfied, as well as supplied, you must act when and where they direct."

She has an extension phone from her home to the store, in order to fill calls that come in after regular business hours. But just being within easy call would not make for a really progressive business, so there is added to quick service a woman's unfailing insight in determining exactly what the customer desires, in addition to good parts and expert service.

Mrs. Jones would have you believe that the woman's angle has nothing to do with it. After talking to her about the way she holds and increases her string of satisfied customers, however, it would seem that her method of handling them—that undeniable feminine method—has much to do with her success.

This is her little secret—instead of always telling customers about the service offered or the parts needed, she lets them tell her all about their needs, their particular problems.

"In this way," she says, "I can learn more about individual demands, and be sure of satisfying the customer if these demands and problems are carefully studied, and the

best possible service given as an answer. Another very good point about this is that you can get a lot of valuable information through discussing the customer's needs with him."

She never worries about discount competition, because she believes that customers lured away by price cutting will come back. They come back, she points out, for the simple reason that such price cutting soon destroys the price cutter, because the profit has likewise been cut. Keep the fair profit, and in the end you'll keep your customers, says Mrs. Jones.

On her staff are three men and a woman bookkeeper. The staff has been very successful in uncovering new business, and, with Mrs. Jones, have produced a number of large and steady accounts.

The business has had an increase in 1938 over that done the previous year. For the future, she feels very optimistic in view of the recent spurt in general business conditions.

In answer to the natural query as to just what a woman is doing in the refrigeration jobbing business, she countered with, "give me one good reason why a woman shouldn't be a refrigeration jobber." You can't answer that one.

But there was still another point. Mrs. Jones' practice of being on the job—or on call—at all hours seemed to be a pretty tough schedule for mere woman.

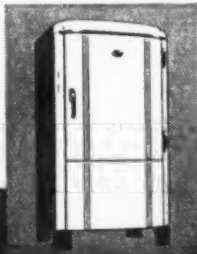
"I admit," she said, "that this is a business you can't afford to leave, but after all, it has become so interesting to me that I don't want to leave."

Merle Haynes To Represent Zenith on West Coast

SAN FRANCISCO — Merle G. Haynes of Pacific Factors, 703 Market St., has been appointed manufacturers' agent by the Zenith Carburetor division of Bendix Aviation Corp.

PENN AUTOMATIC CONTROLS
AND SWITCHES
Protect the reputation of your product
Write for Catalog
PENN ELECTRIC SWITCH CO.
GOSHEN, INDIANA

You can sell more Copelands because they're priced to sell!



Today's market is price-minded. Copeland's low price means "lower-down-payment and easier terms" and those are magic words! Get the facts about Copeland's extraordinary proposition. Write today!

Copeland Refrigeration Corporation
Sidney, Ohio

Interstate's 2-Day Show Draws Many Visitors

OMAHA, Neb.—Fourteen manufacturers of refrigeration and air-conditioning equipment were exhibitors at the two-day display conducted here by Interstate Machinery & Supply Co., parts jobber, on Feb. 23 and 24, reports D. M. Edgerly, vice president.

Attendance at the show exceeded the most optimistic expectations, Mr. Edgerly says, so much so that, although an attempt was made to close the exhibits for the night at 11 p.m., it was midnight before most of the visitors were ready to leave.

Helping to arouse interest in the display was a tube-bending competition sponsored by Imperial Brass Mfg. Co. under the direction of Charles Anderson. Eight service men entered the contest, and the winner not only performed the problem in the shortest time, but also was the most nearly accurate.

Exhibitors at the show included Imperial Brass Mfg. Co., Penn Electric Switch Co., Superior Valve & Fittings Co., American Radiator Co., Chicago Metal Hose Co., Mueller Brass Co., Peerless of America, Inc., Spoehrer-Lange Co., Modern Equipment Corp., Alco Valve Co., Henry Valve Co., Automatic Products Co., Detroit Lubricator Co., and Kold-Hold Mfg. Co.

ALCO Engineered
Refrigerant
Controls
—For Highest
Evaporator Efficiency
Alco Valve Co. St. Louis, Mo.

CHICAGO SEALS
for seal replacements
A complete line in all sizes
CHICAGO SEAL COMPANY
29 NORTH WACKER DRIVE CHICAGO

BUNDY TUBING
Copper-Braced Steel. Copper Coated Inside and Out. Sizes: 1/8" to 1/2" O.D.
BUNDY TUBING CO., DETROIT

For Information on Motors
FOR ALL TYPES OF
Air Conditioning and
Refrigeration Equipment
WRITE TO
Wagner Electric Corporation
4441 FARMINGTON AVE. ST. LOUIS, MO.

Ford Hospital Physician Gives Advice on Treating Methyl Chloride Intoxication

News Relays Results of Research and Experience in Detroit To Worried Doctors in Tucson, Ariz.

Telegram

Tucson, Ariz., March 1, 1939

AIR CONDITIONING & REFRIGERATION NEWS:

House containing methyl chloride 1/2-hp. compressor operating in conjunction with wood alcohol brine tank is 100 cubic foot ranch commercial job destroyed by fire yesterday. Physicians worried whether there would be any future toxic effects on persons overcome by same but released from hospital today. Advise Western Union collect.

P. M. TIDMARSH,
Tidmarsh Engineering Co.

Answer

In reply to your telegram, we wired you as follows:

"Retel article by Higley of Ansul Chemical Co. on toxicity of refrigerants published Nov. 20, 1935 issue of News says:

"Methyl chloride is not an irritant in itself. It goes into the blood stream and may cause some anaesthesia. It reacts on the nerve tissues entirely. It hydrolyses to methyl alcohol, which is not as readily eliminated from the system as ethyl alcohol, with which many of you are undoubtedly familiar. It may decompose under heat to carbon dioxide and hydrochloric acid, but absolutely no phosgene. A trace of carbon dioxide may be formed."

"Have just telephoned Dr. Sladen of Ford Hospital where D. J. Bowen of Dallas, Texas was recently treated for severe case methyl chloride poisoning. Doctor is checking records and another wire will follow after further conversation with him."

Following is a confirmation of the second message:

"Supplementing previous answer, inquiry referred to Dr. J. H. Delaney of Ford Hospital who made thorough study of all available medical literature in connection with treatment of Mr. Bowen which was first case of methyl chloride poisoning treated by this hospital. Methyl chloride may produce acute intoxication from high concentration at one time or from accumulated effect of repeated doses of low concentration."

"Normally symptoms will clear up in three or four days but residual effects may continue for several months. Mr. Bowen's case was due to repeated exposure. He was put under oxygen tent for 72 hours with 60 to 70% oxygen in an attempt to restore functions of damaged nerve cells."

"Additional treatment consisted of

forcing glucose by high carbohydrate diet and administration of 10% glucose solution by intravenous injections. High fluid intake was encouraged to wash out any gases which may have continued to be combined with blood."

"Dr. Delaney introduced another treatment, not reported in literature, consisting of large amounts of Vitamin B in the form of Betaxin. Injections were made at hospital and tablets given to patient to take after release. Vitamin B is essential for normal metabolism and aids in restoration of nerve functions. Literature also recommends administration of sodium bicarbonate to produce alkalosis."

Dr. Delaney furnished the following additional information:

Acute cases are sometimes erroneously diagnosed as food poisoning. Symptomatic measures should be instigated as each case indicates. Convulsions should be controlled with sodium bromide or barbituric acid derivatives. Chloral and chloroform should be avoided. Formic acid may be found in the urine. Suppression of urine for two to three days is another complication."

Patients subjected to severe exposure should be considered a responsibility for several months to make sure that they do not develop any permanent injury. Such symptoms would include ataxia, faulty memory, drowsiness, insomnia, and mental confusion."

If your local physicians desire more detailed information, the following references are recommended:

"Methyl Chloride Poisoning from Domestic Refrigerators"—Kegel, McNally & Pope—Journal of American Medical Association Volume 93—page 353—1929."

"Toxic Effects of Methyl Chloride Gas"—B. B. Sharp—British Medical Journal Volume 1—page 336—Feb. 22, 1930."

"Toxicity of Methyl Chloride for Laboratory Animals"—J. L. White and P. P. Somers—Journal of Industrial Hygiene Volume 13—page 273—1931."

"Medical Aspects of Methyl Chloride"—A. P. Gorham—British Medical Journal Volume 1—page 529—March, 1934."

"Methyl Chloride (Refrigerator) Gas Poisoning, an Industrial Hazard"—Albert Weinstein—Journal of American Medical Association Volume 108—page 1603—1937."

Diesel School Agrees To End Misleading Advertising

WASHINGTON, D. C.—Misleading representations in the sale of correspondence courses in refrigeration, air conditioning, and Diesel mechanics and operation will be discontinued under a stipulation entered into with the Federal Trade Commission by Roy C. Landry and Manufacturers' Laboratory, Inc., Philadelphia.

Under their stipulation, the respondents agree to cease overstating and misrepresenting the demands and opportunities for employment in the Diesel field and the actual earning power or future security of students and graduates. They also stipulate that they will discontinue using "help wanted" or other employment columns in newspapers to contact prospective students in such manner as to mislead them into believing that jobs are being offered.

Respondents also stipulate that they will cease advertising that they find employment for their graduates.

Sunbeam Names Dennedy To Vice Presidency

EVANSVILLE, Ind.—J. Howard Dennedy, former chief engineer of the Sunbeam Electric Mfg. Co., has been appointed vice president in charge of engineering. W. A. Carson, president, announced last week. Mr. Dennedy has been with the Sunbeam firm since it entered the refrigeration field in 1929.

At the same time it was announced that Fred L. Tarleton who joined Sunbeam several weeks ago was appointed chief unit engineer. He came from the household refrigeration department of Frigidaire Corp., at Dayton, Ohio.

Don H. Gaston, formerly of the General Electric Co., was advanced to chief cabinet engineer, it also was announced.

Nason Heads Westinghouse New England District

BOSTON—Frank L. Nason has been appointed New England district manager for Westinghouse Electric & Mfg. Co., succeeding J. P. Alexander, who died several months ago.

Mr. Nason has been associated with Westinghouse's Boston office for 28 years, having joined the supply division as a salesman in 1911. In 1924 he was appointed manager of the central station division, a position he held until his latest advancement.

4 Changes In Des Moines Frigidaire Office Made

DES MOINES, Iowa—F. B. Hartney, manager of the Des Moines district office of the Frigidaire division of General Motors, has announced four promotions and appointments. H. C. Foy has been appointed district service sales manager, and N. H. Seela has been promoted to district sales manager of the commercial refrigeration and air-conditioning department.

N. E. Naugle has been placed in charge of sales promotion of the household appliance department, and J. G. Thompson has been named district representative for commercial refrigeration.

Bush Reports Coil Sales Far Ahead of 1938

HARTFORD, Conn.—Sales of coils and other equipment made by the Bush Mfg. Co. during February were approximately 50% better than in January, and were far ahead of the comparable period for last year, officials of the company have reported.

Firmin Joins Wyman Co.

SOUTH BEND, Ind.—George Firmin has disposed of his electrical appliance business here and has joined the sales staff of George Wyman & Co., local appliance dealership.

McMath New Chairman Of Motors Metal

DETROIT—Robert R. McMath, former president of Motors Metal Mfg. Co., which manufactures (among other things) sheet metal stampings for refrigerator cabinets, was advanced to the position of chairman of the company's board of directors at the annual board meeting.

Other changes effected in the firm's official personnel included the promotion of Nelson C. Johnson, former secretary and treasurer, to the post of vice president and secretary, and the appointment of Harold G. Shaw as treasurer. Steven J. Menzel retained his position as vice president.

Directors of the company, besides Mr. McMath, Mr. Menzel, and Mr. Johnson, are Neil C. McMath, Willard S. Pope, Harry A. Burnett, and Chas. T. Miller.

Washington Prospects View 1939 G-E Lines

SEATTLE—"Open house" weeks here and in Olympia introduced to the public General Electric's 1939 appliance lines. All G-E dealers here participated in the showings, while Olympia residents viewed new models in the showrooms of "Electric City," G-E appliance center.

A. J. Lutz, district manager of General Electric Supply Corp., and Fred A. Block, district appliance manager, conducted the showings in Seattle. Preview in Olympia was managed by Walt Peterson.

THE BUYER'S GUIDE

The Velvet Action Of A PEERLESS EXPANSION VALVE is Due To Superior Design

• There is no jumping, jerking or jitting — just a sure, steady movement that makes Peerless the most advanced thermal expansion valve in the industry. The body of the valve can be placed in a temperature either higher or lower than the bulb temperature without affecting control. Valve is charged with refrigerant having same pressure-temperature characteristics as the refrigerant with which it is used. This causes a more constant superheat throughout entire temperature range. Try a Peerless on your next job and see the difference.

PEERLESS OF AMERICA INC.

MAIN FACTORY • GENERAL OFFICES
515 West Thirty-fifth Street, Chicago

New York Factory
43-20 34th Street
Long Island City
Pacific Coast Factory
3000 S. Main Street
Los Angeles
Export Division
P. O. Box 636, Detroit
Michigan, U. S. A.



WILSON DEALERS HANDLE A COMPLETE LINE

Wilson Systems Of Milk-Cooling Present The Wilson Bottle-Storage Cooler Featuring the TRIPLE PURPOSE central compartment to provide refrigerated brine for: (1) Aeration of Milk. (2) Storage of Milk in the two adjacent compartments. (3) Making of Ice for use on delivery route, if desired. There is a size and type of Wilson Milk-Cooler for every purpose. This Bottle-Storage Cooler, with aerator and pump, makes a complete cooling and storing unit for the small retailer. For the large retailer WILSON SYSTEMS provide the Wilson Sectional Walk-In Storage Coolers in 18 stock sizes with brine tank, aerator and pump.

GET YOUR FULL SHARE OF ALL MILK-COOLING BUSINESS

WRITE FOR DETAILS

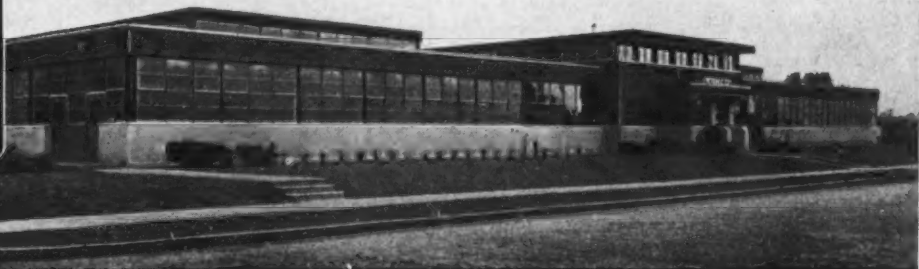
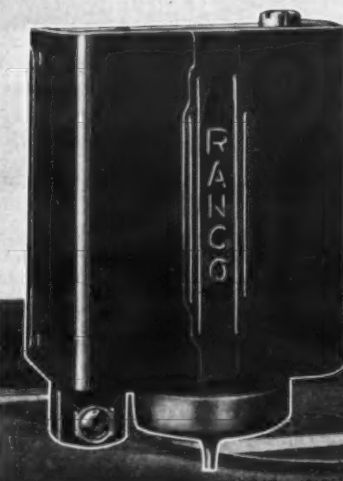
WILSON CABINET CORP.

SMYRNA DELAWARE



One of the Greatest Developments in RANCO'S History

Type "G"—All-Purpose Commercial Control



COMMERCIAL REFRIGERATORS
World's most complete line of commercial cabinets — 13 to 84 cu. ft. capacity.
MIDWEST MFG. COMPANY • GALESBURG, ILL.

PAR CONDENSING UNITS
28 MODELS
1-4 TO 20 H. P.
WRITE FOR FREE CATALOG
MODERN EQUIPMENT CORP.
DEFIANCE, OHIO, U. S. A.

BUSH FINNED COILS
FOR COOLING — HEATING AND AIR CONDITIONING
BUSH MANUFACTURING CO.
HARTFORD, CONN.

You Can Install
SPORLAN VALVES
THERMOSTATIC EXPANSION
with Confidence!

QuiKold BEVERAGE COOLERS
10 MODELS
WRITE FOR CATALOG
S&S COOLERS
LIMA, OHIO

Air Conditioning

Industrial Conditioning Engineer Faces Problems of Extremes, Floreth Says

By T. T. Quinn

DETROIT—The temperature and humidity extremes demanded by industrial air-conditioning applications call for carefulness in engineering far beyond that required for most human comfort systems, J. J. Floreth, of the Chicago branch of York Ice Machinery Corp., told Detroit A.S.R.E. members at their meeting last week.

Mr. Floreth's talk on "Commercial Air Conditioning" followed an ad-

dress on "Comfort Air Conditioning" by L. G. Powers, of the Cincinnati office of Carrier Corp., in which the engineers were told that cooling systems have brought additional profits of from 25 to 100% to retail stores on the investment, by actual figures.

The basic functions of any industrial air-conditioning system are similar to those of human comfort installations, Mr. Floreth said; but, whereas the human comfort appli-

cation is normally confined to the range of the comfort zone, with temperatures between 70 and 85° F. and relative humidities between 45 and 60%, the industrial field of application embraces conditions which may vary from -60° to 140° F. dry bulb, and relative humidity applications from as low as 15% to as high as 95%.

Examples of these extremes may be observed, he said, at the wind tunnel recently placed in operation by Ford Motor Co. at its Rouge plant. Temperatures in this installation vary from -35 to 150° F., and in it cars are tested under temperature and atmospheric conditions similar to those encountered in the tropics and the far north.

"Temperature specifications of this tunnel required the design to not only produce the extremes mentioned," Mr. Floreth said, "but also be capable of varying the temperature from one extreme to the other within a period of 30 minutes, at a wind velocity as high as 70 miles per hour.

NEW PROBLEMS

"These design requirements presented several problems which had to be solved without the benefit of previous experience or application data, inasmuch as this is the first test tunnel of this type and size which has been constructed in this country.

"Ammonia refrigerant was expanded directly in spiral finned steel pipe coils to produce the low temperatures required, which had to be specially designed and constructed to withstand the air velocities encountered, and a unique method and construction of an air bypass was designed by Ford engineers to obtain the temperature control features desired.

"This construction employed the guide vanes at one of the four curves of the oval tunnel to control the amount of air deflected through the coils, or bypassed around the normal oval of the circuit."

CONCRETE TESTING

An example of the extreme relative humidity ranges of industrial air conditioning was encountered several years ago, the speaker said, in connection with a concrete testing laboratory built by the government at Boulder Dam, Col. On a project of this size, involving hundreds of thousands of tons of concrete, it was necessary to test physical properties and strength of each batch before it was poured, and test samples were drawn from each mix for this purpose.

In addition, government engineers were continually experimenting with new mix formulas, and this work, as well as some of the regular 24-hour test runs, required atmospheric conditions with relative humidities as high as 97%.

EXTREMES

Several testing and storage rooms were specially constructed in this laboratory, and air conditioned with designs capable of producing relative humidities from 35 to 97% while the dry-bulb temperature was either varied from 60 to 100° F. or maintained constant at any point within this range.

"Although these extremes of the industrial air-conditioning field are not to be construed as the normal application, they nevertheless serve to illustrate the wide range of this type of air conditioning," Mr. Floreth continued.

Accurate control within close limits is generally another requirement of the industrial application, he said. To illustrate, he cited the necessity of close temperature control in precision machine rooms, and for high-grade work in paper mills and printing plants.

CLOSE CONTROL

Close humidity control is required for any application having to do with hygroscopic materials and chemicals, he declared, citing as examples film drying laboratories, match factories, textile plants. In the pill rooms of Abbott Laboratories, Chicago, he said, where pills are stamped out by machines, a variation of only a slight percentage in the humidity is sufficient to shut down the entire operation for the day.

"The importance of close and accurate temperature and humidity control, combined with the unusual ranges sometimes required, warrants a careful study and consideration of the room or building construction as (Concluded on Page 21, Column 3)

Surveys Show Types of Business Which Installed Cooling In Leading Cities

Editor's Note: Published on this and the following pages are results of surveys of air-conditioning installations in leading cities made through cooperation of local utility companies. The surveys list the types of businesses which made installations, the total number and horsepower for years prior to 1937, during 1937, during 1938, and the totals for all installations up to the end of 1938.

Similar surveys of other population centers have appeared in previous issues of AIR CONDITIONING & REFRIGERATION NEWS.

On page 22 is published a complete survey of all installations made during 1938 in Indianapolis listing names, addresses, type of equipment, installer, and horsepower and tonnage.

Boston, Mass.

(Data Supplied by Edison Elec. Illuminating Co.)

Classification	Prior to 1937		During 1937		During 1938		Total	
	No.	Hp.	No.	Hp.	No.	Hp.	No.	Hp.
Theaters	15	3,623.5	2	109.5	2	135.5	19	386.5
Restaurants, Bars & Night Clubs	66	1,365.25	23	286.75	35	369.75	124	2,021.75
Residences	59	84.13	25	32.0	3	10.0	87	126.13
Beauty & Barber Shops	5	74.5	1	8.5	4	26.75	10	109.75
Stores								
Miscellaneous	45	3,822.5	0	0.0	0	0.0	45	3,822.5
Women's	0	0.0	11	240.5	4	45.0	15	285.5
Men's	0	0.0	1	12.0	0	0.0	1	12.0
Department	0	0.0	0	0.0	1	80.0	1	80.0
Shoe	0	0.0	7	53.25	5	35.0	12	88.25
Drug	0	0.0	2	23.0	3	28.25	5	51.25
Candy	0	0.0	2	9.5	7	29.0	9	38.5
Perfume	0	0.0	1	3.5	0	0.0	1	3.5
Millinery	0	0.0	1	10.5	0	0.0	1	10.5
Florist	0	0.0	1	6.0	0	0.0	1	6.0
Photographer	0	0.0	1	10.0	0	0.0	1	10.0
Jewelry	0	0.0	0	0.0	3	23.75	3	23.75
Offices & Buildings	15	739.25	13	241.75	19	238.5	47	1,219.5
Funeral Homes	4	27.0	0	0.0	0	0.0	4	27.0
Banks	0	0.0	2	7.75	3	19.0	5	26.75
Hospitals	0	0.0	2	280.0	5	256.5	7	536.5
Hotels	0	0.0	3	57.0	2	71.0	5	128.0
Churches	0	0.0	0	0.0	2	21.5	2	21.5
Industrial	7	237.5	2	28.0	8	58.75	17	324.25
Miscellaneous	22	586.0	1	3.25	7	32.75	30	622.0
Room Coolers	0	0.0	144	108.0	250	250.0	394	358.0
Total	273	11,375.29	246	1,680.75	363	1,732.0	882	14,788.04

Hartford, Conn.

(Data Supplied by the Hartford Electric Light Co.)

Classification	Prior to 1937		During 1937		During 1938		Total	
	No.	Hp.	No.	Hp.	No.	Hp.	No.	Hp.
Beauty Parlors	1	7.0	1	2.5	0	0.0	2	9.5
Candy Mfr.	2	5.0	0	0.0	0	0.0	2	5.0
Cocktail Room	1	16.5	0	0.0	0	0.0	1	16.5
Department Stores	2	398.5	2	136.0	1	13.5	5	548.0
Furriers	1	34.5	0	0.0	2	9.0	3	43.5
Hospitals	2	8.0	3	3.25	0	0.0	5	11.25
Industrial	3	135.0	0	0.0	0	0.0	3	135.0
Office Buildings	4	455.0	0	0.0	0	0.0	4	455.0
Offices	9	13.0	7	15.5	4	10.75	20	39.25
Residences	3	6.0	1	0.75	3	15.75	7	22.5
Restaurants	9	94.0	6	47.0	8	74.75	23	215.75
Stores	4	31.5	5	38.0	1	3.75	10	73.25
Theaters	1	167.5	1	28.0	0	0.0	2	195.5
Funeral Homes	1	10.0	1	4.0	0	0.0	2	14.0
Total	43	1,381.5	27	275.0	19	127.5	89	1,784.0

Pawtucket, R. I.

(Data Supplied by the Blackstone Valley Gas & Electric Co.)

Classification	Through 1937		During 1938		Total	
	No.	Hp.	No.	Hp.	No.	Hp.
Banks	3	14.0	1	35.0	4	49.0
Drug Stores	0	0.0	2	4.08	2	4.08
Funeral Homes	1	10.75	3	14.75	4	25.5
Public Utility	1	36.0	0	0.0	1	36.0
Retail Stores	4	119.25	1	1.08	5	120.33
Theaters	2	138.5	0	0.0	2	138.5
Showrooms	0	0.0	2	9.83	2	9.83
Total	11	318.5	9	64.74	20	383.24

Hagerstown, Md.

(Data Supplied by the Potomac Edison System)

Classification	Prior to 1937		During 1937		During 1938		Total	
	No.	Hp.	No.	Hp.	No.	Hp.	No.	Hp.
Apartments	3	2.5	3	5.5	2	1.5	8	9.5
Banks	2	1.0	0	0.0	0	0.0	2	1.0
Beauty Parlors	0	0.0	4	12.5	1	3.0	5	15.5
Candy	3	8.25	0	0.0	0	0.0	3	8.25
Clubs	2	6.5	0	0.0	0	0.0	2	6.5
Dentists	5	3.75	1	0.5	2	1.5	8	5.75
Doctors	3	2.0	1	0.5	4	2.0	8	4.5
Drug Stores	0	0.0	2	4.7	3	14.0	5	18.7
Fur Shops	1	1.5	1	2.2	1	1.5	3	5.2
Jewelry Store	1	3.5	0	0.0	0	0.0	1	3.5
Laboratory	1	0.75	0	0.0	0	0.0	1	0.75
Miscellaneous	1	5.0	1	1.0	2	26.0	4	32.0
Offices	18	50.5	10	74.5	4	35.5	32	160.5
Radio Stations	2	1.5	0	0.0	0	0.0	2	1.5
Residences	4	4.0	2	2.0	6	4.5	12	10.5
Restaurants	2	39.5	0	0.0	4	19.5	6	59.0
Stores	3	12.5	4	47.0	2	12.5	9	72.0
Tap Rooms & Grills	2	9.0	2	8.4	1	10.0	5	27.4
Theaters	3	40.0	1	5.0	1	17.5	5	62.5
Funeral Homes	1	6.0	0	0.0	2	6.0	3	12.0
Total	59	197.75	32	163.8	35	155.0	126	516.55

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ALL-STEEL-EQUIP COMPANY Incorporated
138 Kensington Avenue Aurora, Illinois

Air Conditioning

Washington, D. C.

(Data Supplied by Potomac Electric Power Co.)

Classification	Prior to 1937		During 1937		During 1938		Total	
	No.	Hp.	No.	Hp.	No.	Hp.	No.	Hp.
Banks	2	31.75	1	1.50	3	12.25	6	45.5
Barber & Beauty Shops	9	71.50	6	29.25	6	42.50	21	143.25
Churches	2	109	0	0	1	.50	3	109.5
Clubs	2	9.50	3	32.25	0	0	5	41.75
Funeral Parlors	3	32.75	6	55.50	7	100	16	188.25
Hospitals	3	161.50	1	47.50	0	0	4	209
Hotel Dining Rooms and								
Cocktail Rooms	19	846.75	7	165	2	38	28	1,049.75
Hotel Guest Rooms	7	1,214	5	237.75	4	63.50	16	1,515.25
Industrial	8	156	1	68	6	307	15	531
Office Buildings	8	2,301.50	6	167	3	119.50	17	2,588
Private Offices	66	260	52	293.75	68	147	186	700.75
Residential:								
Residences & Apts.	99	173.50	35	42.75	51	48.50	185	264.75
Apartment Houses	0	0	0	0	3	438.25	3	438.25
Restaurants and								
Night Clubs	65	1,318.75	22	373.50	24	336.25	111	2,028.50
Schools	1	3	0	0	1	5.25	2	8.25
Stores:								
Department	18	2,657.50	5	372	3	1,463	26	4,492.50
Drug	19	338	8	79.25	18	223.50	45	640.75
Five & Ten Cent	8	852.50	4	541.50	1	25	13	1,419
Retail Apparel	50	570.75	14	151.75	15	165.50	79	888
Retail, Misc.	20	161.25	10	63	14	79	44	202.25
Theaters	19	2,962.50	10	764.25	6	493.50	35	4,220.25
All Others	12	96	4	146	8	96.50	24	338.50
Totals	440	14,328	200	3,631.50	244	4,204.25	884	22,164.00
Governmental	64	25,114.25	18	2,820	19	1,618	101	29,552.25
Totals	504	39,442.25	218	6,451.50	263	5,822.50	985	51,716.25

Poughkeepsie, N. Y. (and Area)

(Data Supplied by Central Hudson Gas & Electric Corp.)

Classification	Prior to 1937		During 1937		During 1938		Total	
	No.	Hp.	No.	Hp.	No.	Hp.	No.	Hp.
Private Home	0	0.0	1	1.0	0	0.0	1	1.0
Doctors & Dentists' Offices	0	0.0	4	2.75	2	1.75	6	4.5
Utility Company	0	0.0	1	110.0	0	0.0	1	110.0
Beauty Parlors	1	5.0	0	0.0	1	3.0	2	8.0
Coffee Shop	1	3.0	0	0.0	0	0.0	1	3.0
Restaurants	1	3.0	1	5.0	1	6.0	3	14.0
Retail Stores	0	0.0	1	3.0	1	3.0	2	6.0
Theater	0	0.0	1	85.0	0	0.0	1	85.0
Industrial	0	0.0	1	2.0	0	0.0	1	2.0
Total	3	11.0	10	208.75	8	17.5	21	237.25

Territory Served By West Penn Power Co.

(No Town Over 25,000 Population Served)

Classification	Prior to 1937		During 1937		During 1938		Total	
	No.	Hp.	No.	Hp.	No.	Hp.	No.	Hp.
Retail Stores	3	40.3	10	103.25	3	36.0	16	179.55
Restaurants	2	40.3	2	29.5	2	18.0	6	87.8
Theaters	1	6.0	0	0.0	2	0.83	3	6.83
Offices	3	294.75	7	363.0	7	178.5	17	791.25
Beauty Parlors	2	2.0	3	2.5	3	3.08	8	7.58
Miscellaneous	1	1.0	1	1.0	0	0.0	2	2.0
Total	15	487.45	23	499.25	19	239.66	57	1,226.36

Rockford, Ill.

(Data Supplied by Central Illinois Electric & Gas Co.)

Classification	Prior to 1937		During 1937		During 1938		Total	
	No.	Hp.	No.	Hp.	No.	Hp.	No.	Hp.
Theaters	1	300.0	1	26.0	1	10.0	3	336.0
Hotels	2	35.0	1	22.0	2	27.25	5	84.25
Offices	5	17.5	8	21.33	9	20.5	22	59.33
Laboratory	1	13.0	0	0.0	0	0.0	1	13.0
Residences	14	22.25	18	15.65	9	5.75	41	43.65
Department Stores	1	25.0	5	130.75	0	0.0	6	155.75
Fur Store	0	0.0	1	5.5	0	0.0	1	5.5
Novelty Shop	0	0.0	1	0.25	0	0.0	1	0.25
Confectionery Store	0	0.0	0	0.0	1	5.5	1	5.5
Drug Store	0	0.0	1	23.0	0	0.0	1	23.0
Clothing Stores	0	0.0	1	3.0	1	6.0	2	9.0
Restaurants	1	20.33	4	6.75	4	21.0	9	48.08
Funeral Parlors	0	0.0	1	9.0	1	5.5	2	14.5
Barber Shops	0	0.0	3	0.75	2	0.5	5	1.25
Taverns	0	0.0	2	3.7	1	5.25	3	8.95
Club Room	0	0.0	0	0.0	1	3.25	1	3.25
Total	25	433.08	47	267.68	32	110.5	104	811.26

Dayton, Ohio

(Data Supplied by the Dayton Power & Light Co.)

Classification	Prior to 1937		During 1937		During 1938		Total	
	No.	Hp.	No.	Hp.	No.	Hp.	No.	Hp.
Commercial (Stores, Restaurants, Theaters, Hotels, Offices, etc.)	58	1,603.6	35	904.34	27	639.21	120	3,147.15
Hospitals	2	7.0	0	0.0	2	1.87	4	8.87
Industrial	27	751.0	16	192.99	1	55.0	44	999.99
Residential	29	52.5	22	33.82	21	17.2	72	103.52
Total	116	2,414.1	73	1,131.15	51	713.28	240	4,258.53

Territory of Illinois Northern Utilities Co.

(Data Supplied by Illinois Northern Utilities Co.)

(Headquarters at Dixon, Ill.)

Classification	Prior to 1937		During 1937		During 1938		Total	
	No.	Hp.	No.	Hp.	No.	Hp.	No.	Hp.
Retail Stores	2	3.5	2	8.5	3	1.5	7	13.5
Restaurants	2	8.0	6	5.0	2	5.5	10	18.5
Utility Company Offices	0	0.0	1	25.0	1	15.0	2	40.0
Residences	4	7.0	0	0.0	5	9.75	9	16.75
Hotel	1	0.5	0	0.0	0	0.0	1	0.5
Commercial Offices	6	9.5	10	24.0	12	54.25	28	87.75
All Others	3	6.5	1	10.0	0	0.0	4	16.5
Total	18	35.0	20	72.5	23	86.0	61	193.5

Many Sources of Loads Encountered In Some Industrial Systems

(Concluded from Page 20, Column 3) the first step in analyzing any industrial application of air conditioning," Mr. Floreth stated. "If the conditions are to be maintained in an exposed building, a study of the exposures and sun effect should also be made.

"The load due to human occupancy must also be more carefully investigated than is normally necessary for human comfort applications, although sometimes this is almost negligible compared to other internal loads."

Among the things to consider in this regard, he continued, are whether the number of workers is fixed or variable, and whether these workers are permanent or transient. Another new angle has been added recently in view of industrial labor unrest... the importance of air conditioning in bettering employer-employee relations by adding to workers' health and comfort.

The increased lighting load being used in industrial plants also is causing increasing problems for the design engineer, Mr. Floreth declared. This load has increased two and one-half times in the last 10 years—from an average of 2 watts per square foot in 1928 to an average of 5 watts in 1938 in some of the better-lighted plants.

OTHER INTERNAL LOADS

"Other internal loads, entirely independent of the building losses, people, or lighting, are often the largest factor in the air-conditioning design problems," he went on. "Unless there are heat loads generated by the particular process involved, electric motors are in many cases the largest single load factor, often running as high as 75% of the total load.

"Here again, a careful investigation of the variations should be made, such as their period of operation, cycle of operation, and particularly the balance which will result if they are down entirely."

As an example, he told of the installation in the precision machinery room and assembly room of the Norge factory in Detroit, used in compressor production and assembly. Temperature of 72° is required, with but 1/4° variation, plus or minus, and relative humidity of 40%, with 1% variation permitted.

EQUIPMENT

Floor area of the precision machinery room is 6,800 sq. ft., and of the assembly room 8,900 sq. ft., with room volumes of 80,000 and 105,000 cu. ft., respectively. Seventy people work in the precision machinery room, 90 in the final assembly room; light wattage in the first enclosure is 34,000, and in the second, 45,000.

Motor horsepower driving machinery in the precision room totaled 340 hp., and 80 hp. in the assembly room, which room also had an additional welder load of 30 kva. Total tonnage required for the job was 145, of which only 36 tons was required for conditions other than those caused by lighting or equipment loads.

Total load of lights, motors, and equipment was therefore 109 tons, or approximately 75% of the total load. Air circulated by the system totaled 41,500 c.f.m. Dewpoint temperature of air leaving the dehumidifier was 43°, with a three-minute air change required in the precision machinery room, and a seven-minute change necessary in the final assembly room.

On Sunday, when the motors and lighting equipment were not in use and when occupancy was lightest, load on the system dropped all the way down to 20 tons.

CONCENTRATION OF LOADS

As another instance of the problem presented by the particular concentration of loads at one point, or within a very limited area, Mr. Floreth told of the tub enameling room of the Ingersoll Steel & Disc division of Borg-Warner, Chicago.

The room contained two baking ovens, operated at a temperature of 900° F., and representing more than 200 tons refrigeration load, a problem which would have been a physical impossibility to meet, since a sufficient quantity of air could not be supplied at a practical diffusion temperature to absorb the heat released in that relatively small area.

Even if air had been introduced as low as 40°, it would only have resulted in chilling the backs of workmen at the ovens, while they roasted in front. After considering the possibility of using exhaust systems and special hoods, the problem finally was met by isolating the load, and conditioning the rest of the room.

Several important factors merit consideration in designing and selecting equipment for industrial cooling applications, Mr. Floreth pointed out. The equipment must have complete flexibility, to meet conditions resulting from changing loads.

In some industries, it also is advisable to provide stand-by equipment—duplicate facilities for use only in cases of emergency.

Air distribution systems—routing and location of ducts, type of supply outlets, locations of supply and

return grilles—may mean the difference between success and failure in an industrial conditioning job.

Proper zoning of the system also is extremely important, he declared. As an example of this, he told of the system installed in the Abbott Laboratories, Chicago, for the air conditioning of test rooms in which white mice are studied for their reactions to various types of foods.

Fourteen separate test rooms are served by the system, with temperature control within 1° required for scientifically accurate results.

While he admittedly drew on the more unusual types of installations for his examples, Mr. Floreth in closing reminded his audience that these were but "the magnified picture of similar minor conditions arising on the majority of installations" in the industrial cooling field.

THE BUYER'S GUIDE



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Business News Publishing Co., 5229 Cass Ave., Detroit

Switchboard Temperature Indicator Is Introduced By Leeds & Northrup

PHILADELPHIA—A new switchboard-model temperature indicator, equipped with self-contained toggle-type switches for connecting any one of a number of thermocouples to the measuring circuit so that temperatures of either near or distant couples may be simply and easily read, has been placed on the market by Leeds & Northrup Co., instrument manufacturer here.

Use of a potentiometer measuring circuit—hand-standardized, but with automatic reference-junction compensation—is said to eliminate uncertainties due to circuit-resistance variables. Scale is claimed to be practically uniform throughout and is calibrated for single or double range, the latter for use with similar or different couples. Built-in terminals, check key, and mercury thermometer can be included for checking with a portable indicator.

The rigid metal case mounts flush in panel but can be equipped with hangers for surface mounting. The galvanometer is replaceable. Only maintenance required, the manufacturer claims, is occasional replacement of the dry cell. A red light gives warning when this replacement is needed.

Separate selector switches can be used external to the indicator, if desired, or space for additional self-contained toggle-type switches may be obtained by assembling the indicator (with case removed) in a cabinet similar to that of the Micromax strip-chart recorder.

Window-Type 'Attic Fan' Marketed

NEW YORK CITY—A new apartment model cooling fan, designed for use in apartments or homes in which regular attic fans cannot be installed, has just been marketed by Chelsea Fan & Blower Co.

By installing this fan on the outer part of the window, the same cooling effect can be obtained as from a standard attic fan, the company claims.

The fan is manufactured in two sizes, 24-inch and 30-inch, and is constructed of steel which is said to be proportionately light in weight. Motor is of special fan duty type, with high efficiency, and the fan itself rotates at very slow speed, and has a specially constructed blade designed to deliver a large volume of air with minimum noise.

A metal awning protects the motor from outside conditions, and the fan unit is finished in "weather-proof" paint.

Electrically Operated Room Ventilator Announced

CHICAGO—An electrically operated room ventilator for use in offices, homes, and apartments has recently been introduced by the Ad-Lee Co., Inc. under the trade name "Health-Air."

Portable and adjustable to fit any size window, the unit is claimed to be usable the year around to insure a supply of fresh, clean air with a minimum of outside noises.

The ventilator is enclosed in a steel cabinet, and is finished in crackle gray. It takes up a space 16 x 8 x 14 inches, and is equipped with two blower-type fans which are said to supply up to 450 c.f.m. of outside air.

Louvers regulate the direction of the air, and a rheostat regulates air speed. List price of the unit is \$49.50.

Dole Refrigerating Co. Issues New Catalog

CHICAGO—A new catalog showing the wide application of low temperature cold plates has just been completed by Dole Refrigerating Co.

Described and illustrated in the catalog are the advantages resulting from the use of these plates in refrigerated trucks, ice cream cabinets, soda fountains, ice cream hardening rooms, quick-frozen foods, milk coolers, bottle coolers, and other similar low-temperature installations.

Copies of the catalog may be obtained by writing to the company.

Where Air-Conditioning Systems Were Installed In Indianapolis In 1938

(Compiled by the Indianapolis Power & Light Co.)

Name and Address Make of Equipment Tonnage Hp.

Bank

Railroad Men's Federal Savings & Loan Association, 21 Virginia Ave. Frick 30.0 40.5

Beauty Shop

Mary Smith Beauty Shop, 4911 N. Pennsylvania Lipman 7.5 8.5

Doctor's Office

Dr. Glen D. Conway, 1620 S. East St. Climax 0.5 0.5

Drug Store

Liggett Drug Co., 1 N. Pennsylvania St. Carrier 15.0 15.5

Hospital

U. S. Veterans Hospital (Operating Room), 2401 Cold Spring Rd. York 7.5 8.5

Hotel

Severin Hotel (Rainbow Room), 201 S. Illinois St. General Electric 13.0 14.0

Industrial or Process Applications

Pitman-Moore Co., Zionsville, Ind. Frick 15.0 21.0

R.C.A. Mfg. Co., 501 N. LaSalle St. General Electric 0.5 0.5

Laboratory

Ell Lilly & Co., 740 S. Alabama St. Carrier 30.0 45.0

General Offices

Air-Control, Inc., 886 Massachusetts Ave. Carrier 0.78 0.85

American Professional Equipment Co., 1145 E. 22nd St. Climax 3.0 3.0

Baxter Steel Equipment Co., 1550 E. 21st. Carrier 3.0 3.2

Deere & Co., 1035 W. Washington St. Fairbanks-Morse 20.0 27.0

Electric Steel Castings Co., Speedway, Ind. E. K. Campbell 0.0 7.0

First Federal Savings & Loan Co., 2 E. Market St. Frigidaire 3.0 3.2

Loews, Inc., 421 N. Illinois St. Airtemp 15.0 17.0

T. A. Mulrey & Son, 3023 N. Illinois St. Kelvinator 0.8 1.0

Paramount Pictures Corp., 123 W. Michigan Westinghouse 7.5 9.0

United Post Offices Corp., 309 Postal Station Bldg. Airtemp 2.25 2.4

Westerlin & Campbell, Inc., 899 Massachusetts Ave. York 3.0 3.5

Private Offices

L. J. Badollet, 514 Electric Bldg. Kelvinator 0.5 0.75

Merlin Dunbar, 925 Circle Tower Bldg. Carrier 0.7 0.75

General Engineering Co., 1843 N. Alabama. General Electric 0.9 1.0

P. F. Goodrich, 709 Electric Bldg. Carrier 0.75 0.78

Ideal Furniture Co., 227 W. Washington St. Climax 1.5 1.6

Hal Kealing, 1028 Chamber of Commerce. Climax 0.5 0.5

Wallace O. Lee, 511 Electric Bldg. York 0.75 0.8

Frank McHale, 1020 Chamber of Com. Bldg. York 0.75 0.8

E. G. Ralston, 507 Electric Bldg. York 1.5 1.6

W. C. Richardson, 408 Electric Bldg. York 1.5 1.6

E. E. Scott, 503 Electric Bldg. York 1.5 1.6

Residences

R. Norman Baxter, 5555 Washington Blvd. Carrier 1.5 1.56

R. Norman Baxter, 5555 Washington Blvd. Carrier 3.0 3.2

Dr. Glen D. Conway, 2235 E. Garfield Dr. Climax 0.75 0.75

Bowman Elder, 350 N. Meridian St. Carrier 0.75 0.8

H. L. Hilke, 4315 Park Ave. Climax 0.75 0.75

H. J. Lacy, Sr. (add'l.), 43rd & Kessler. Kelvinator 3.0 3.0

J. K. Lilly, Sr. (add'l.), 65th & Eagle Creek General Electric 2.0 2.0

J. K. Lilly, Sr. (add'l.), 65th & Eagle Creek Kelvinator 3.0 3.0

Mrs. C. C. Perry, 2625 N. Meridian St. York 0.75 0.8

C. R. Ramage, 202 W. 44th St. York 0.75 0.8

L. G. Rexroth, 940 N. Arlington Ave. Frigidaire 0.6 0.8

J. F. Rotz, 3930 Broadway. Carrier 0.75 0.78

Arthur Strauss, 2120 N. Meridian St. Frigidaire 0.6 0.8

Restaurants & Bars

Betsy Ross Tea Rm., 1611 N. Meridian St. York 7.5 9.0

Ell Lilly & Co., 740 S. Alabama St. Carrier (well water) 0.0 25.0

Riley Hotel Bar, 155 W. 16th St. Goldenrod (well water) 0.0 5.5

Russett's Cafeteria, 37 S. Meridian St. York 50.0 60.0

Stegemeier's Grill, 114 N. Pennsylvania St. Frigidaire 10.0 11.0

Stores, Dept. & General Clothing

L. S. Ayres & Co., 1 W. Washington St. Airtemp 3.0 3.5

W. H. Block Co., 50 N. Illinois St. Frigidaire 3.0 3.2

Richman Bros., 22 E. Washington St. York 10.0 11.0

F. W. Woolworth Co., 11 E. Washington. York 160.0 246.0

Bakery

Omar Baking Co., 32 N. Delaware St. Airtemp 3.0 3.35

Confectionery Store

Maud Muller Candy Shop, 11 N. Meridian. Frigidaire 3.0 3.2

Fur Stores

Green Fur Co., 17 N. Pennsylvania St. York 2.0 2.35

Indiana Fur Co., 31 E. Ohio St. Airtemp 5.0 5.5

Jewelry store

Kay Jewelry Co., 137 W. Washington St. York 7.5 8.5

Shoe Store

Feature Shoes, 20 N. Pennsylvania St. Airtemp 3.0 3.35

Theaters, Well Water

Lido, 786 Indiana Ave. Am. Blower 0.0 12.5

Park, 2441 Martindale Ave. Am. Blower 0.0 12.5

Vogue, 6257 College Ave. National-Am. Blower 0.0 20.5

Undertakers

Roscoe Conkle, 1934 W. Michigan St. Climax (add'l.) 1.5 1.5

Hermann Funeral Home, 1505 S. East St. Climax (add'l.) 0.75 0.75

Harry W. Moore, 2050 E. Michigan St. General Electric 2.0 2.5

CLASSIFIED ADVERTISING

RATES: Fifty words or less in 6-point light-face type only, one insertion, \$2.00, additional words four cents each. Three consecutive insertions \$5.00, additional words ten cents each.

PAYMENT in advance is required for advertising in this column.

REPLIES to advertisements with Box No. should be addressed to Air Conditioning & Refrigeration News, 5229 Cass Ave., Detroit, Mich.

POSITIONS AVAILABLE

REFRIGERATING ENGINEER to specialize in the design of a complete range of beverage and water cooling lowside by a nationally known refrigeration manufacturer. A man now employed in this work is preferred. The submission of your qualifications will be kept confidential. Box 1123, Air Conditioning & Refrigeration News.

REPRESENTATIVES WANTED

MANUFACTURER'S REPRESENTATIVE wanted by old established corporation for midwest territory. Product nationally advertised and sold to manufacturers, distributors and dealers. Applicants must be between 28 and 50 and have background of experience in commercial appliances. Straight commission; protected territory. Car needed. Address PELCO, Bloomington, Illinois.

WANTED: FACTORY Representatives in U. S. and Canada to sell refrigeration supply jobs on commission basis. THAW-ZONE "A," liquid dehydrator and acid neutralizer, in use commercially two years. Efficiency thoroughly proved. Desire representatives already established and calling upon jobbers in their territory. HIGH-SIDE CHEMICALS CO., 195 Verona Ave., Newark, New Jersey.

MANUFACTURER'S REPRESENTATIVE wanted: With commercial refrigeration experience, to sell beverage coolers to distributors, dealers, and bottlers. Write today giving full details, age, experience and territory familiar with. Excellent opportunity for producers. UNDA BAR COOLER CORPORATION, 2800 N. 9th St., St. Louis, Mo.

POSITIONS WANTED

MECHANICAL ENGINEER. 16 years' experience in household refrigeration and air conditioning; cabinet and unit design, developments and tests. Thorough knowledge of service set-ups and extensive experience in contacting dealers and distributors and handling their problems. Capable advancing new ideas on major household appliances and following through with design and production. Box 1126, Air Conditioning & Refrigeration News.

YOUNG MAN wants position in commercial refrigeration or air conditioning business where advancement is possible. Age 28, 4 years' college plus 2 years' refrigeration and air conditioning training; athletic; likes hard work; inventive; ambitious; reliable; 100% honest; single; go anywhere. Address Box 549, Republic, Pa.

FRANCHISE AVAILABLE

COMMERCIAL LINE refrigerator display cases, walk-in coolers, and refrigerators; also direct draw, mechanically-cooled beer coolers. Sell with Ehrlich compressors or with any other make. Attractive discounts, also financing arrangements to help sell. 70 years in business. Write for full information. EHRLICH REFRIGERATOR MFG. CO., St. Joseph, Mo.

REPAIR SERVICE

GENERAL ELECTRIC and Westinghouse hermetic unit replacement and rebuilding service. One year unconditional guarantee. All units are completely rebuilt on a modern production line, tested through every step of rebuilding with complete test equipment, subjected to exhaustive operation tests for wattage, efficiency, quietness and then Duco finished. General Electric DRI, DR2, and Westinghouse, \$30.00. Quotations furnished on other models. Quick service—guaranteed work. REFRIGERATION MAINTENANCE CORPORATION, 321-27 East Grand Avenue, Chicago.

CONTROL REPAIR service. Your controls repaired by expert mechanics, with special precision equipment. Supervised by graduate engineers. We stress perfection and dependability before price. One year guarantee on domestic controls. One bellows operated device repaired. HALECTRIC LABORATORY, 1793 Lakeview Road, Cleveland, Ohio.

MISCELLANEOUS

ATTENTION ALL MANUFACTURERS—Eastern firm moderately in the market. Information desired regarding coils, equipment, accessories, controls, etc., used in manufacture of self-contained conditioners and specialty refrigeration devices. If you have anything which we can use, kindly send complete details. Replies confidential. Agent: HOWARD HATHAWAY, JR., Portsmouth, R. I.

PATENTS

HAVE YOUR patent work done by a specialist. I have had more than 25 years' experience in refrigeration engineering. Prompt searches and reports. Reasonable fees. H. R. VAN DEVENTER (ASRE), Patent Attorney, 342 Madison Avenue, New York City.

Foreign News

'38 Exports Second Best In 8 Years

(Concluded from Page 1, Column 1) which bought 2,029 refrigerators. In unit sales, runners-up to France were the United Kingdom with 1,652; Brazil with 1,643; Argentina with 1,399; and Canada with 1,391.

Leaders in the matter of total value of commercial sales were: Canada, \$158,423; United Kingdom, \$155,152; Brazil, \$153,522; France, \$117,790; and Union of South Africa, \$103,632.

Exports of parts for electric refrigerators in 1938 fell off very little from the 1937 total value, respective figures being \$5,225,640 and \$5,419,928.

Canada was the best buyer in 1938, taking \$1,448,111 worth of parts,

roughly \$400,000 more than it bought in 1937.

Ranked behind Canada in order were: United Kingdom, \$703,655; Argentina, \$423,503; France, \$392,457; Sweden, \$338,997; Union of South Africa, \$290,431.

On the whole, the 1938 refrigeration export business stood up fairly well considering the political unrest and strife in Europe and the Orient. Except for 1937, last year was the best in the past six years.

Export Sales Slump During January

WASHINGTON, D. C.—Exports of electrical equipment, including refrigerators, from the United States during January took a nosedive to the lowest total in many months, it is revealed by figures released by the

Preliminary 1938 Export Totals of Refrigerators & Refrigerating Equipment By Countries

Preliminary Figures (subject to revision) Compiled by Division of Foreign Trade Statistics, Bureau of Foreign and Domestic Commerce, United States Department of Commerce

Countries	Electric Household Refrigerators Number	Value	Electric Commercial Refrigerators Up to 1 Ton Number	Value	Parts for Electric Refrigerators Value
Albania	22	\$ 1,901	5	\$ 857	\$ 148
Austria	16	1,020	...	...	2,002
Azores and Madeira Islands	60	5,243	...	...	70
Belgium	2,836	209,157	1,106	79,587	99,240
Bulgaria	67	6,391	31	2,339	2,616
Czechoslovakia	620	25,294	...	...	54,851
Denmark	72	5,852	9	712	37,218
Finland	435	32,397	284	21,290	75,313
France	8,882	538,234	2,029	117,790	392,457
Germany	46	3,871	3	573	3,026
Gibraltar	249	29,514	99	9,271	21,589
Greece	2	257	...	...	240
Hungary	1	193	...	...	14,129
Iceland	575	47,647	138	11,322	39,041
Irish Free State	892	81,248	76	9,313	139
Italy	50	4,850	...	...	1,525
Lithuania	94	8,601	...	...	56,241
Malta, Gozo, and Cyprus	3,567	223,830	385	36,461	66,077
Netherlands	1,902	156,987	351	40,208	11
Norway	13	1,463	3	249	15,756
Poland and Danzig	423	36,597	69	8,919	10,687
Portugal	202	18,609	1	242	296
Rumania	2	110	...	...	338,997
Spain	4,300	295,053	1,043	93,233	46,537
Sweden	756	55,060	22	3,166	9,647
Switzerland	126	14,945	113	16,197	703,655
U. S. S. R. (Russia)	13,707	689,521	1,652	155,152	80
United Kingdom	25	1,924	...	...	...
Yugoslavia	10,773	673,626	1,391	158,423	1,448,111
Canada	85	7,989	1	147	60
British Honduras	351	34,305	30	4,288	9,140
Costa Rica	329	32,225	33	8,684	5,293
Guatemala	159	15,304	7	1,616	1,139
Honduras	65	6,560	3	814	278
Nicaragua	522	47,185	79	15,896	17,787
Panama	458	55,554	126	17,097	17,904
Panama Canal Zone	265	27,787	41	9,561	3,841
Salvador	1,926	158,069	428	54,973	57,117
Mexico	224	20,372	26	3,752	2,623
Newfoundland and Labrador	477	40,014	82	10,108	8,407
Bermuda	218	20,270	17	1,653	2,200
Barbados	199	19,441	39	6,715	6,461
Jamaica	558	50,581	80	11,926	6,678
Trinidad and Tobago	242	24,877	38	5,462	4,954
Other British West Indies	4,902	406,776	880	93,268	106,097
Cuba	318	22,116	15	3,161	2,256
Dominican Republic	799	87,914	144	19,188	12,435
Netherlands West Indies	70	5,748	1	250	624
French West Indies	162	15,093	1	227	538
Haiti	5,689	358,022	1,399	96,166	423,503
Argentina	152	13,601	1	69	4,700
Bolivia	12,042	955,026	1,643	153,522	122,673
Brazil	964	89,112	73	7,513	17,048
Chile	2,245	204,258	265	48,885	24,766
Colombia	181	14,839	2	811	1,956
Ecuador	224	18,456	5	707	379
British Guiana	52	4,730	...	...	97
Surinam	443	42,641	11	2,521	2,023
French Guiana	839	70,804	11	3,064	14,447
Paraguay	223	21,007	62	6,693	21,265
Peru	3,944	369,622	283	56,801	37,555
Uruguay	46	5,101	7	1,064	585
Venezuela	29	3,377	7	4,509	1,452
Aden	2,605	216,386	155	19,132	79,200
Saudi Arabia	123	10,571	8	1,944	1,799
British India	1,538	132,780	169	23,799	23,626
British Burma	241	21,906	22	3,001	3,902
British Malaya	233	24,010	163	20,162	34,493
Ceylon	2,307	211,419	7	1,225	11,263
Netherlands East Indies	495	40,438	31	7,166	5,148
French Indo-China	673	53,405	32	5,447	4,453
Hong Kong	198	17,115	...	...	4,136
Iraq	43	3,482	...	...	715
Japan	20	1,714	...	...	20,386
Kwantung	989	79,352	27	5,753	3,462
Palestine	92	6,734	74	11,184	34,310
Iran	1,927	208,152	226	40,061	528
Philippine Islands	340	28,060	11	1,334	3,108
Siam	234	28,293	43	6,966	19,853
Syria	2,343	201,856	561	56,736	5,953
Turkey	33	3,513	5	1,315	...
Other Asia	3,415	251,505	616	47,464	110,728
Australia	64	6,179	1	113	1,142
British Oceania	38	2,740	...	...	934
French Oceania	6,518	519,296	1,083	82,548	83,256
New Zealand	250	27,839	1	129	2,959
Belgian Congo	402	37,225	25	4,644	8,356
British East Africa	20,289	1,707,163	956	103,632	290,431
Union of South Africa	436	38,070	29	3,576	5,688
Other British South Africa	205	20,285	6	856	3,213
Gold Coast	257	25,332	2	346	3,583
Nigeria	33	3,412	...	...	477
Other British West Africa	488	45,702	113	15,701	19,729
Egypt	1,155	90,019	200	22,474	23,352
Algeria	693	51,931	78	9,911	7,172
Tunisia	43	4,059	...	...	506
Madagascar	172	15,663	3	296	4,466
Other French Africa	19	2,085	...	...	34
Liberia	853	65,710	32	3,788	7,834
Morocco	805	79,177	35	3,940	8,218
Mozambique	137	12,855	9	949	677
Other Portuguese Africa	4	440	...	...	...
Canary Islands	2	185	4	560	22
Other Spanish Africa	...	...	...	...	...
Total	140,929	\$10,721,548	19,390	\$1,920,201	\$5,225,640

Shipments to: Hawaii 6,274 \$26,141 737 123,711 62,389
Puerto Rico 2,477 323,393 457 60,667 28,350
Virgin Islands 50 6,684 4 1,372 1,602
*Austria and Germany combined after March.

electrical division of the Bureau of Foreign and Domestic Commerce.

Foreign sales in January were valued at \$7,275,711, a decrease of 32% from the December, 1938 total of \$10,695,189, and a decrease of 14.1% from the January, 1938 total.

Export sales of electric refrigerators in January numbered 6,210 units valued at \$501,325, as compared with the December total of 8,210 units valued at \$631,958.

Comparatively few items in the electrical equipment group escaped the slump in export sales. January shipments of radio receiving sets were 35,081 units valued at \$808,842, whereas December shipments amounted to 55,001 units valued at \$1,271,674.

Williams Handles Exports Of Philco & Yorkaire

NEW YORK CITY — Timothy Williams has joined American Steel Export Co., Inc. here to handle export sales of Philco's Conservador refrigerators and Yorkaire portable air conditioners.

Associated with Philco for 20 years, Mr. Williams has for the past five years supervised factory layout, production, and sales of parts, tubes, and test equipment for Philco Radio & Television Corp. of Great Britain.

American Steel Export Co. is exclusive exporter of Conservador refrigerators and Yorkaire conditioners.

THE BUYER'S GUIDE

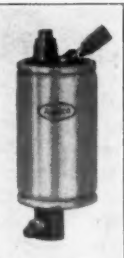
Replacement High-Side Floats



Standard Compressor Type

Aminco Replacement High Side Floats enable the independent service man to efficiently serve a large number of refrigerator users hitherto unable to deal with him.

This model is offered in two shell heights, 6½" and 9". It may be used with SO₂, CH₃Cl, or "F-12." Equipped with non-corrosive Amincol seat.



Hermetic Type

Here is a unit especially designed for hermetic type refrigerators. It is a complete replacement and comes ready to install. The non-corrosive seat eliminates float trouble due to acid in the system and greatly increases the length of float life.

AMERICAN INJECTOR COMPANY

1481 FOURTEENTH AVENUE, DETROIT, MICH.
Pacific Coast: Van D. Clothier, 1015 E. 16th, Los Angeles, Calif.

THE PROFIT LINE FOR '39

Refrigerator and Compressor sales go together. SHERER offers a complete line of cases, coolers and boxes to be sold with your compressors.

Write for catalog and franchise details, mentioning territory desired.

SHERER-GILLET CO., Marshall, Mich.
Manufacturers of Refrigerated Display and Storage Equipment



MAKE OVER 41% CLEAR PROFIT with GILMER 35-R BELT ASSORTMENT
YOU PAY \$19.98
YOU GET \$34.18
YOU MAKE \$14.20

Described and illustrated in the Gilmer Belt Catalog. Use Gilmer f.h.p. Belts. Belt engineers build them. Get your Gilmer Catalog today.

L. H. GILMER COMPANY, Tacony, Philadelphia

SEND FOR FREE PRESSURE-TEMPERATURE CHART OF REFRIGERANTS

This handy chart gives pressure-temperature relationships of sixteen commercial refrigerants. Write for your free copy!

PITTSBERG CHEMICAL CO.

Central Tower, San Francisco, California

Manufacturers of

Triple-Refined SULPHUR DIOXIDE

New Process METHYL CHLORIDE

Shipped in the New Light-Weight Cylinders.

Also Methylene Chloride



REFRIGERATED WALL DISPLAY CASES

FOR FRUIT, VEGETABLES, DAIRY PRODUCTS, DELICATESSEN OR FRESH MEATS

- All porcelain interior and exterior.
- Hard rubber triple glazed sliding doors.
- Oversized coils—specially designed for perfect preservation of all types of foods.

Inquire today about our complete line. Interesting Distributor Proposition.

FOGEL REFRIGERATOR COMPANY, Since 1899
16th & Vine Sts., Phila., Pa.

York To Approach Commercial Air Cooling Market on 'Comfort & Efficiency' Theme

(Concluded from Page 1, Column 3) cause the fan discharge may be up, down, or in a horizontal direction.

Finished in wrinkle taupe, the new self-contained package conditioners may be located in the conditioned space, in the basement of the building, or at any other adjacent space. Fan capacities are ample to permit use of the units with a duct distribution system.

The units are equipped with two or three condensing units located in the condensing unit section, and are operated according to the load requirements of the conditioned space. Multiple refrigerant circuits in the cooling coil make it possible to balance capacity against the load.

Engineers for the company contemplate that the units will be sold in multiple to serve buildings requiring as much as 75 tons capacity.

Promotional and advertising plans outlined by J. L. Rosenmiller, head of the York sales promotion department, were built around an extensive survey made by the company last year.

SURVEY SURPRISED

In the belief that consulting engineers were closer to the buyer of air conditioning than any manufacturer or distributor, York engaged an unbiased organization to talk with consulting engineers and find out what prospective purchasers of air-conditioning equipment were thinking about. The survey also extended to owners of all types of air-conditioning equipment.

The survey revealed that the prime interest of prospective purchasers of air-cooling equipment today is in employee relationships and customer satisfaction. It was found that business men are no longer buying air conditioning in an attempt to steal their competitors' trade, Mr. Rosenmiller said. Because the majority of business men today are more interested in the happiness and comfort of their employees and customers than in anything else, the York sales plan for 1939 has been built around this theme.

Reports of the survey have been published in a book, "Atmosphere and Efficiency," which has been made available to all salesmen and distributors of the company.

'FAIR' PUBLICITY

Publicity released by the York organization during this year will be built around the story of air conditioning used in buildings at the New York World's Fair. Among the important exhibits conditioned by York are the Eastman Kodak building, Firestone Fire & Rubber Co. building, General Cigar Co. building, and the Soviet Pavilion of the U. S. S. R. York distributors and dealers were urged by Mr. Rosenmiller to make use of their local newspapers by obtaining publicity on local York installations and news of their activities.

ADVERTISING PLANS

Advertising used by the company in national and trade magazines will include 24 million messages. Full-page advertisements in the Saturday Evening Post and Time magazine will be tied in with advertisements for the York "Cool-Wave" portable room-cooler units, which will be sold and guaranteed by Philco.

The new York Cool-Wave units are available in three capacities: model 40, 1/2 hp., model 40, 1/2 hp., and model 90, 3/4 hp. The small unit is for use in a window, and is installed in a water-tight cradle which fits into the sill. After the unit is installed, the window may be locked in place. The small units will be sold by the Philco dealer organization on the basis of giving "reasonable" comfort and York executives state that equipment will be marketed on conservative estimates of load requirements.

'COOL-WAVE' PRICES

Sale of the Cool-Wave units will be augmented by a campaign of newspaper and billboard advertising, featuring the small unit at \$150, \$15 down. Prices on the two larger units are \$275 and \$400 respectively.

Approximately 10,000 Philco dealers will display the new units this year. It is contemplated that all of the 25,000 Philco dealers may eventu-

ally handle the Cool-Wave air-conditioning units.

Other York products introduced at the meeting included a new line of forced convection commercial cooling units for use in walk-in refrigerators, and a new line of gas-fired forced-air heating equipment, built in standard capacities for residential use. A new gas-fired steam and hot water boiler also was shown at the meeting.

Chattanooga Dealers Oppose City Selling

(Concluded from Page 1, Column 2)

Power Board should be authorized to spend money on promotional work, especially to stimulate a demand for electric heating of houses.

It was agreed at the meeting that legislation would be sought immediately to give the Power Board authority to engage in promotional work, and to aid electrical appliance dealers by wiring homes for water heaters and other devices calculated to increase consumption of current, without charge.

Included in the proposed legislation will be a provision authorizing the Power Board to engage in the merchandising of appliances. This is being done, it was said, as a safeguard to permit such action in the event conditions later demand it.

Emmett Terrell, Terrell Electric Co.; Hal Hirsheimer, Sears, Roebuck & Co.; and John Fowler, Fowler Furniture Co., were named to represent dealers in drawing up the legislation to be sought.

New TVA rates, which will become effective when the city takes over the local utility, will reduce the dollar volume sale of power by about 30%, and the power load must be built up to where dollar volume will equal its present standing to take advantage of cheaper rates, the dealers were told.

Chairman L. J. Wilhoite told dealers that this means that the city must sell "a million dollars' worth of electricity for the same amount of money."

In discussing ways in which to accomplish this, it was suggested that the sale of electric water heaters would go a long way toward making up the load, as would the free wiring of homes by the Power Board.

One dealer said that there are at least 1,000 homeowners ready to install electric water heaters with the coming of the lower power rates.

"It is the opinion of the Power Board, in which the electrical merchants concurred, that the board, if it can do so consistently with the development of the public power program, should avoid engaging in the sale of electrical appliances," Mr. Wilhoite said, in explaining the purpose of the meeting.

"It also is the belief of the board that it should place itself in the position to aid aggressively in the promotion of energy-consuming devices, particularly those applications of electricity that have not as yet been developed to a commercially profitable stage."

Judging Board Chosen For Bendix Contest

SOUTH BEND, Ind. — Contest judging division of Reuben H. Donnelly Corp., Chicago, has been retained to handle reading, rating, and judging of entries in the nationwide Comparison Contest now being conducted by Bendix Home Appliances.

The contest, which started Jan. 31 and ends April 1, offers 150 Bendix home laundries with a retail value of \$27,000 to the writers of the 150 best "finishes" to the statement: "The Bendix home laundry saves work, time, and money, and protects health because..."

Within three weeks of the start of the contest, dealers requested a total of nearly half a million official entry blanks, Mr. Erickson reports.

Advertising carrying the contest announcement and theme headlines such as "Stop slaving over your washing machine—Lady, take your choice—Are you slave or sweet-heart?" is currently running in Saturday Evening Post and Good Housekeeping.

'Blackhawk' Line of Refrigerators For 'World Market' Built By Midwest

GALESBURG, Ill.—A line of five "Blackhawk" household electric refrigerators in five sizes, ranging from 3 to 8-cu. ft. food storage capacity, is being offered by Midwest Mfg. Co. for the world market this year.

Deluxe units are built in the 5, 6, and 8-cu. ft. sizes, and standard models in the 3 and 4-cu. ft. class for use in small apartments and homes.

Cabinets, of modern styling, are of welded steel construction, with exterior finish of lacquer and interior of one-piece porcelain enamel.

Interiors of all models are arranged and equipped for convenience and usability. Evaporator is of fast-freezing type, easy to clean, and is built of extruded aluminum. Deluxe models have an attractively embossed evaporator door. All models have nine-point cold control.

CONVENIENCE FEATURE

Deluxe models also have an automatic interior light, full-width food basket in the lower cabinet section, a sliding tray shelf, and porcelain hydrator.

All ice trays and grids are of aluminum, and cabinet shelves are easily removed. Interior porcelain liner is rounded for easy cleaning. Defrosting tray, under the evaporator, also is usable as a meat storage section.

Standard models are constructed of the same materials used in the higher priced units, but are different in cabinet styling, shelving, base, and hardware.

Model CP-3 in the standard line has a storage capacity of 3 cu. ft. and a shelf area of 6.3 sq. ft. It is equipped with two ice trays, with a capacity of 42 cubes or 5 lbs. at a freezing. Model CP-4 has a net capacity of 4.2 cu. ft. and a shelf area of 8.4 sq. ft., with the same ice capacity as the 3-cu. ft. model.

In the deluxe series, model CT-5 has a storage capacity of 5.3 cu. ft., shelf area of 10.1 sq. ft. Its one deep tray and two standard trays have a capacity of 84 ice cubes or 7 lbs. per freezing.

Model CT-6 has a net capacity of 6.2 cu. ft., with 11 sq. ft. shelf area. It has one deep and four shallow trays, which turn out 126 ice cubes or 10 lbs. per freezing. Model FT-8 has a net capacity of 7.8 cu. ft. and shelf area of 15.1 sq. ft., with one deep and two shallow trays with a capacity of 84 cubes, or 10 lbs.

Condensing unit of reciprocating design is used to power the line. Two largest models employ a twin-cylinder unit, and the smallest are equipped with a single-cylinder unit. The 6-cu. ft. model is available with either single or twin-cylinder compressor, under the designations CT-6-1 and CT-6-2.

For the two-door refrigerator market, Midwest this year is continuing its three models 138, 168, and 198. First of these has a capacity of 13.5 cu. ft. and a shelf area of 22.3 sq. ft., while the second has a capacity of 16 cu. ft. and storage area of 26.3 sq. ft. Largest model

has a capacity of 19.5 cu. ft., with shelf area of 31.5 sq. ft.

Ice cube capacity of these units ranges from 10 1/2 to 17 1/2 lbs. per freezing. They are designed for use in restaurants, taverns, clubs, laboratories, schools, large homes, and similar commercial and semi-commercial installations.

The company also is continuing its line of all-porcelain one and two shelf single and double-duty display cases. Units in this series are available in lengths of from 6 to 12 feet, with storage capacities from 36 to 75 cu. ft. and shelf areas from 26 to 56 sq. ft.

Compressor sizes of from 1/4 to 1/2 hp. are recommended in this series. Models have a standard height of 51 inches, and display compartments are fitted with three panes of 1/4-inch glass, processed to prevent fogging. Insulation is 4 inches thick throughout. Adjustable scale station, paper cutter, and wrapping board is standard on all models.

Sales Are Up 20% Since October, Dealers Told

SALT LAKE CITY—A steady increase in electrical appliance sales during 1939 was forecast by E. R. Bridge, Norge representative, before a meeting of dealers and salesmen of the Salt Lake Hardware Co.

Since October, Norge and similar appliance companies have shown an increase in sales of from 20 to 22%, he pointed out. He predicted that the better business expected in 1939 will show a small but consistent increase in the spring months, with the real boom coming in the summer.

"No Valves Returned or Removed..." Since changing to



Mr. Fred H. Roth,
President & Treasurer



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ALL MAKES REFRIGERATION
SALES & SERVICE, INC.
General Electric — Emerson — Capeland — Commercial — Danisco — Air Conditioning
Sales — Service — Installation — Refilling
2407 1/2 MONTROSE AVENUE
Chicago, Ill.
February 1, 1939

Automatic Products Company
2450 North 32nd Street
Milwaukee, Wisconsin

Attention: Mr. E. A. Vallee

Dear Mr. Vallee:

Some time ago we started using A-P expansion valves exclusively and since that time have had no valve returned and not one removed for any reason from any installation.

This is the first time we have ever had an experience like this and we feel happy about it, of course, because it reduces our service expense.

Very truly yours,
ALL MAKES REFRIGERATION SALES & SERVICE
Fred H. Roth
President & Treasurer

MEMBER: NORTH SIDE Contractors Association, Chicago Master Plumbers Association — Suburban Division

Refrigeration Engineers and Service Men! Treat yourself to the "unusual experience" of reduced service costs! Your Parts Jobber will tell you that the best way to do so is to switch to A-P Thermostatic Expansion Valves on all installations. For A-P Valves have long ago proved this Dependability on every type and size of Air Conditioning and Refrigeration.



The busy repair and parts shop of "All Makes Refrigeration Sales & Services, Inc."

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2450 NORTH THIRTY-SECOND STREET
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Refrigeration Parts Jobbers, Who Recognize Quality, Stock A-P Controls

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THE BYWORD FOR A-P VALVES

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